LESSON 1 – INTRODUCTION TO FOOD SAFETY

The food industry plays a vital role in feeding the world's population by ensuring a reliable supply of safe and nutritious food products. It is a complex and multifaceted sector where quality and food safety practices are essential.

The food industry encompasses various sectors of production including agriculture, farming, fishing, and livestock rearing. Modern food production often involves the use of advanced technologies and practices to increase efficiency and yield. Regardless of the industry in which food production occurs, the need to ensure food is safe for consumption is priority.

Understanding food safety starts with understanding risk.

Also, it is vital to know that food safety risks differ depending on where the food product is in the production, manufacturing, or preparation chain.

Food safety knowledge is important to anyone who works with food at anyone who works with, sells or serves food.

In business and industry, food safety standards differ between the operational objectives:

1. Processing and manufacturing

2. Sales of commercially pre-prepared and packaged food (PPDS)

3. Cooking and/or serving fresh food

SAFETY

Food safety refers to the processes and procedures followed to ensure food is safe for consumption and free from contamination or other hazards that have the potential to cause harm. This includes food handling, preparation, storage, transportation of food, as well as regulation and oversight of these processes.

Food safety is a shared responsibility among food producers, manufacturers, distributors, retailers, food service establishments, and consumers. It requires a combination of education, training, proper infrastructure, and effective enforcement to safeguard the quality and safety of the food supply.

Human health and wellbeing depend upon an adequate supply of quality produce and food products which is uncontaminated. Contamination suggests food is unsafe for human consumption.

There are several reasons food can be unsafe:

- The original food product is unsafe (for example, it contains toxic chemicals in quantities above what the body can tolerate)

- The food is not prepared properly (for example, some foods are unsafe until cooked)

- Contaminated by microorganisms.

- Contaminated by other substances in storage or work areas.

- It has degraded in storage.

Emerging food safety issues are current or evolving concerns that pose risks to the safety and integrity of the food supply. These issues can arise because of some sort of change, whether this is a change in practice, technology, or consumer behaviour.

Examples of emerging issues include:

- Antimicrobial resistance - The overuse and misuse of antibiotics in agriculture and animal production contribute to the emergence of antimicrobial resistance in bacteria.

- Food fraud and mislabelling – the increasing globalisation of food has caused an increase in food to be misrepresented. This can involve misleading the consumer to the authenticity of the food or substituting food ingredients or counterfeit products. This is often done for economic gain.

- Alternative protein sources – with the growing popularity of alternative protein sources such as plant-based meat substitutes or culture/lab grown meat, new challenges exist in ensuring product safety and regulation.

- Genetically modified organisms (GMOs) in global food production. The research in the safety of GMO food continues as food security persists as unpredictable across the world.

- Reducing human intervention in food processing and increasing automation and the use of robotics, may also improve food safety and reduce potential contamination.

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Suggested Tasks

Ask 2 or 3 people if they have ever had a safety issue with food. These might be friends, colleagues or anyone.

More specifically ask:

1. Have you ever had an accident handling or preparing food which damaged yourself or the food?

2. Have you or anyone you know ever suffered food poisoning?

Explore the cause and what prevention measures could have been applied in a discussion of at least one safety situation.

Spend up to 15 mins in discussion.

Microbial contamination is slowed by keeping food colder.

## 9 Benefits and Objectives of Food Safety include:

1. **Protecting human health** - Foodborne illnesses can have severe health consequences, ranging from mild discomfort to life-threatening conditions. Decent food safety practices should minimise the risk of microbial contamination, foodborne pathogens, and chemical and physical hazards. The issues associated with foodborne illnesses can have huge consequences for businesses.

2. **Improve food hygiene** – By implementing robust food safety measures, such as proper handling, storage, and cooking, the likelihood of foodborne outbreaks can be reduced. Higher risks foods – such as raw and uncooked foods – do need knowledge built around safe practices.

3. **Build consumer confidence** - Food safety practices inspire confidence and trust with consumers. When consumers have assurance that the food, they consume is safe, they are more likely to choose and purchase products from reputable sources. Labelling encourages consumer confidence.

4. **Compliance with food regulations** – Governments and regulatory bodies have established food safety regulations and standards to help protect public health. These regulations often serve as a guide to ensure food is safe for consumption. Adhering to these regulations is often essential for food businesses to operate legally and may involve a licence for operation, but adherence to regulation can also help maintain reputation in the market.

5. **Brand reputation and business sustainability** - A strong commitment to food safety can build a company's reputation. A single food safety incident can have severe consequences for a business, including financial losses, legal implications, and a damaged brand image. Prioritising food safety demonstrates responsibility and care, which can contribute to long-term business sustainability.

6. **International trade and market access** - Compliance with food safety standards is often crucial for international trading. Exporting food products requires meeting the importing country's safety requirements as well as those within their own country. By ensuring high food safety standards, businesses

can access global markets, expand their customer base, and drive economic growth.

7. **Food quality and customer satisfaction** - Food safety is intricately linked to food quality. Safe food is less likely to spoil and aims to maintain the highest quality aspects of the food (e.g., smell, taste, appearance). Ensuring food safety contributes to maintaining the desired quality attributes can enhance enhancing customer satisfaction.

8. **Environmental impact** - Poor food safety practices can lead to environmental pollution. For instance, improper use of pesticides or inadequate waste management can contaminate soil, water sources, and ecosystems. Adhering to proper food safety practices mitigates these risks and promotes environmental sustainability. This can be an effective marketing tool for food manufacturing businesses.

9. **Public awareness and education** - Promoting food safety raises public awareness and educates consumers about safe food handling practices. This knowledge empowers individuals to make informed decisions, adopt proper hygiene practices, and minimise the risk of foodborne illnesses.
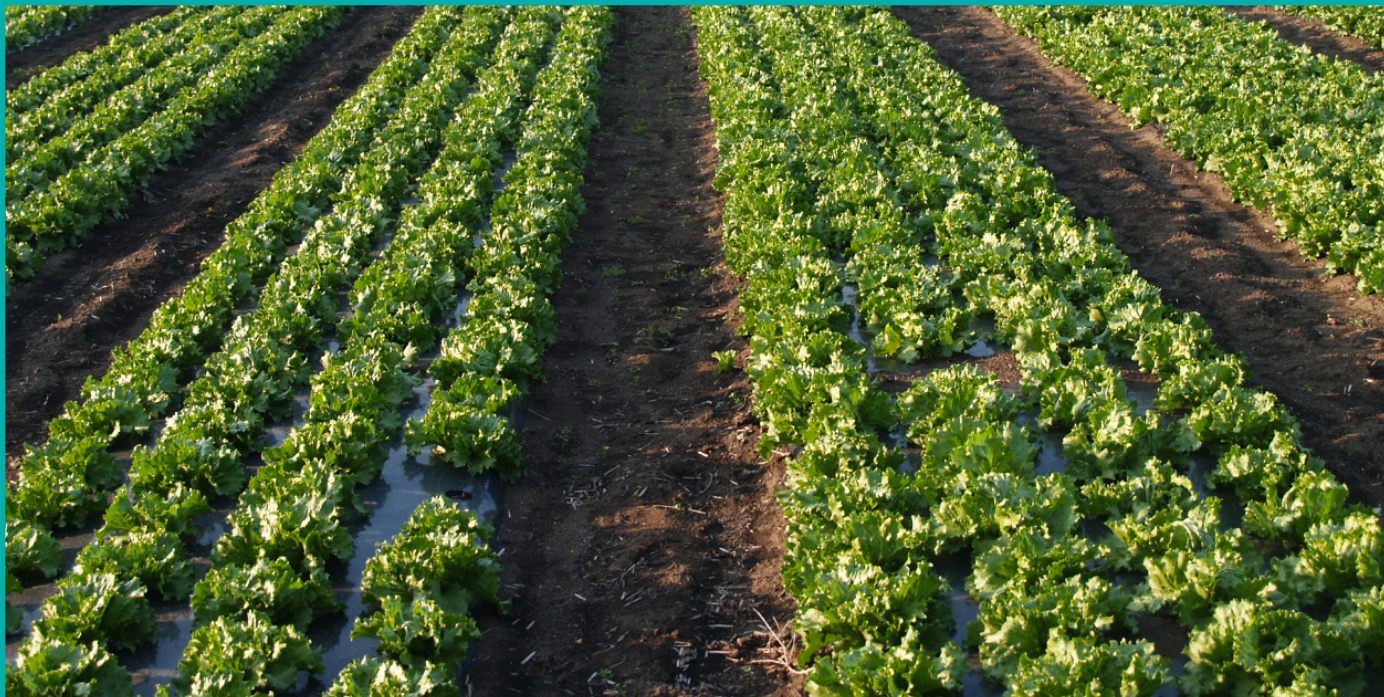
Cleaner farming practices can produce foods that are less likely to be contaminated.

RISK & RISK ANALYSIS

All food manufacturers must have robust processes in place to ensure that contamination does not occur. Processes (procedures) arise from policy. Policy arises from regulation.

Regulation arises from legislation. Research and analysis influence legislation. In food safety, research and an analysis of the risks takes places at every stage in the production chain. Contamination could occur during the manufacturing process, as well as

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Suggested Tasks

Explore what food safety regulations apply in one sector of the food industry in your locality.

You might do this any of the following ways:

1. Have a discussion with someone who works in the food industry (eg. in a cafe, food retailing, production or manufacturing).

2. Obtain written guidelines from a regulatory authority (eg. local government health dept).