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ȘI ECONOMIE AGRARĂ DIN BRĂTUȘENI

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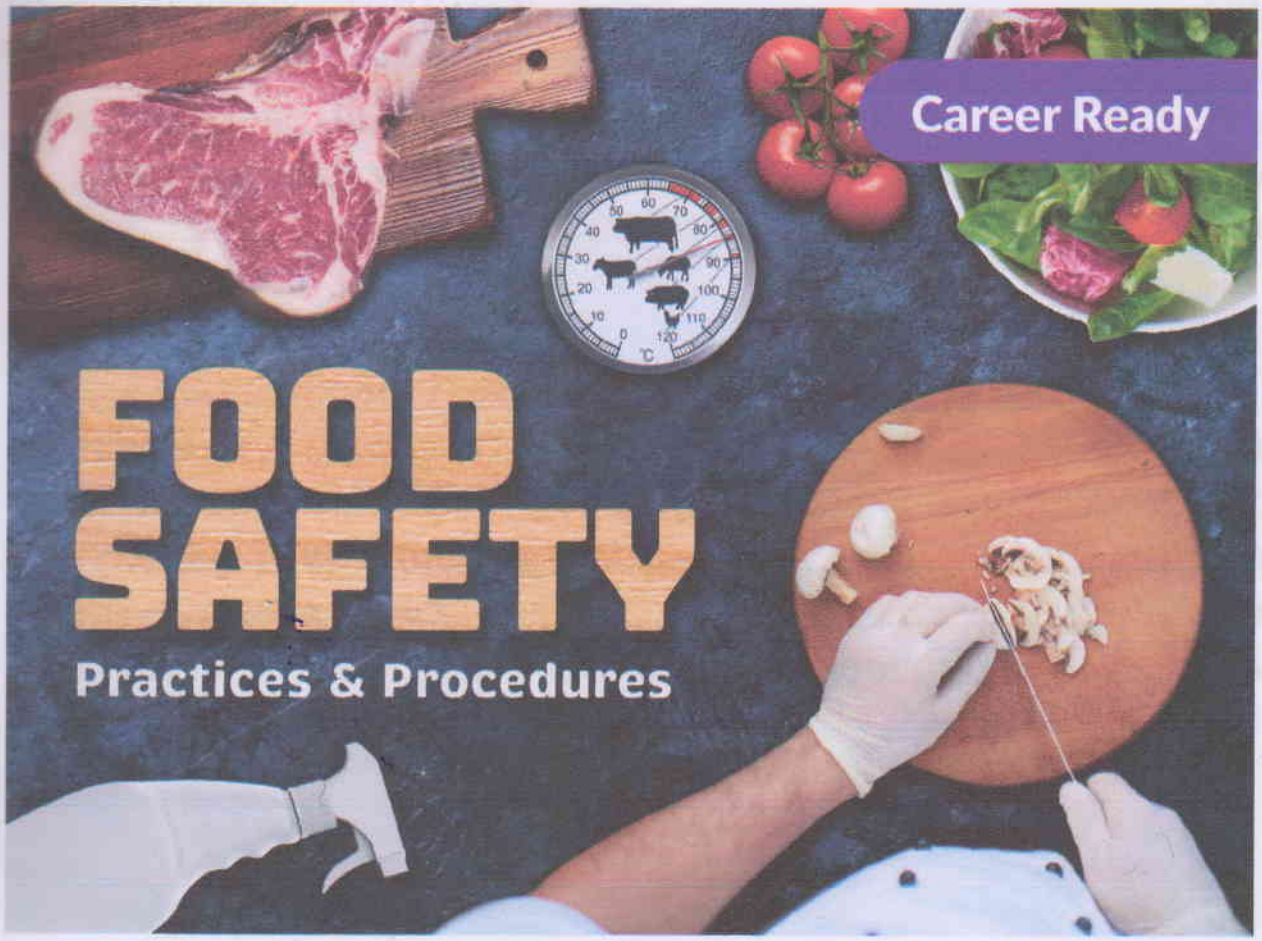

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CHAPTER 1.1: FOOD SAFETY BASICS

What is Food Safety?
Food safety is the practice of keeping food clean and healthy to eat. It means making sure food will not harm people when they eat it. Unsafe food can cause **foodborne illnesses** — sicknesses that happen when people eat food that has harmful bacteria, viruses, parasites, or chemicals.

Why is Food Safety Important?
Unsafe food can make people very sick. In some cases, it can even cause death. Food safety is important because:

- It prevents **food poisoning**.
- It reduces the risk of **illness outbreaks**.
- It protects children, the elderly, and people with weak immune systems.
- It builds trust between food producers and customers.

Foodborne Illness – A Real Danger Foodborne illnesses can happen anywhere – at home, in restaurants, or in factories. They are usually caused by:

- **Bacteria** like Salmonella or E. coli.
- **Viruses** like Norovirus.
- **Parasites** like worms.
- **Chemicals** like pesticides or cleaning products.

Common Symptoms of Foodborne Illness:

- Stomach pain
- Vomiting
- Diarrhea
- Fever
- Headache

The Five Key Rules of Food Safety (WHO Guidelines)

1. **Keep Clean**
    - Wash hands before and after handling food.
    - Clean all surfaces and tools used for food.
    - Use clean water for cooking and washing.

2. **Separate Raw and Cooked Food**
    - Raw meat, poultry, and seafood can spread harmful bacteria.
    - Use separate cutting boards and knives.
    - Store raw food below cooked food in the fridge.

3. **Cook Food Thoroughly**
    - Heat kills most dangerous bacteria.
    - Cook meat and poultry until juices run clear.
    - Use a food thermometer if possible.

4. **Keep Food at Safe Temperatures/Chill**
    - Do not leave food out at room temperature for more than 2 hours.
    - Keep hot food hot (above 60°C).
    - Keep cold food cold (below 5°C).

Danger Zone Temperature (5°C to 60°C) This is the temperature range where bacteria grow quickly. Always try to keep food out of this range to reduce risk.

Food Labels and Expiry Dates Food packaging gives important information:

- **Expiry date**: The last day the food is safe to eat.
- **Storage instructions**: How to keep the food safe.
- **Ingredients list**: What the food is made of.
- **Allergen information**: If the food has milk, nuts, gluten, etc.

Important Food Safety Words

- **Bacteria** – Tiny organisms that can grow in food and make you sick.
- **Contamination** – When harmful things get into food.
- **Hygiene** – Being clean to avoid disease.
- **Cross-contamination** – When bacteria from raw food touch clean food.
- **Thermometer** – A tool to measure temperature.

Basics for Handling Food Safely

Safe steps in food handling (обработка пищевых продуктов), cooking, and storage (хранение) are essential to prevent foodborne illness (болезни пищевого происхождения). You can't see, smell, or taste harmful bacteria that may cause illness. In every step of food preparation, follow the four steps of the Food Safe Families campaign to keep food safe:

Shopping

- Purchase refrigerated or frozen items.
- Never choose meat or poultry in packaging that is torn (повреждена) or leaking (течет).
- Do not buy food past "Sell-By," "Use-By," or other expiration dates (даты истечения срока годности).

Storage

- Always refrigerate perishable food (скоропортящиеся продукты) within 2 hours--1 hour when the temperature is above 32.2 ºC.

- Check the temperature of your refrigerator and freezer with an appliance thermometer. The refrigerator should be at 5 ºC
- or below and the freezer at -17.7 ºC or below.
- Cook or freeze fresh poultry, fish, ground meats, and variety meats within 2 days; other beef, veal, lamb, or pork, within 3 to 5 days.
- Perishable food such as meat and poultry should be wrapped (завернуть) securely to maintain quality and to prevent meat juices from getting onto other food.

Preparation

- Always wash hands before and after handling food.
- Don't cross-contaminate. Keep raw meat (сырое мясо), poultry (птица), fish, and their juices away from other food. After cutting raw meats, wash hands, cutting board, knife, and counter tops (столешницы) with hot, soapy water.
- Marinate meat and poultry in a covered dish in the refrigerator.
- Sanitize cutting boards by using a solution of 1 teaspoon chlorine bleach (хлорный отбеливатель) in 1 quart of water.

Serving

- Hot food should be held at 57 ºC or warmer.
- Cold food should be held at 5 ºC or colder.
- Perishable food should not be left out more than 2 hours at room temperature--1 hour when the temperature is above 32.2 ºC.

Thawing (разморозка)

- Refrigerator: The refrigerator allows slow, safe thawing. Make sure thawing meat and poultry juices do not drip (капают)onto other food.
- Cold Water: For faster thawing, place food in a leak-proof (непротекаемый)plastic bag. Submerge (погрузить) in cold tap water (проточная вода). Change the water every 30 minutes. Cook immediately after thawing.
- Microwave: Cook meat and poultry immediately after microwave thawing.

Leftovers (остатки)

- Discard any food left out at room temperature for more than 2 hours--1 hour if the temperature was above 32.2 ºC.
- Place food into shallow (небольшой) containers and immediately put in the refrigerator or freezer for rapid cooling.
- Use cooked leftovers within 4 days.
- Reheat leftovers to 73.9 ºC.

Refreezing

Meat and poultry defrosted in the refrigerator may be refrozen before or after cooking. If thawed by other methods, cook before refreezing.

Real-life Example: Maria's Day at Work Maria works in a school kitchen. She begins her day by washing her hands and cleaning the counters. She stores raw chicken in a closed container at the bottom of the fridge. She uses one cutting board for meat and another for vegetables. She cooks the chicken to 75°C and checks with a thermometer. At the end of the day, she cleans all equipment and records the fridge temperatures. Maria follows good food safety practices.

Quick Check: What Should You Do?

1. You drop a spoon on the floor.
   Do you: a) Use it anyway
   b) Wash it before using again

2. You see meat stored above vegetables in the fridge. Is this safe?
   a) Yes
   b) No
3. What is the danger zone for bacteria to grow in food?
   a) 0–5℃
   b) 5–60℃
   c) 60–100℃

Speaking Practice Work with a partner and ask each other:

- What are three things you do to keep food safe?
- How do you check if food is fresh?
- What can happen if we don't follow food safety rules?

Writing Task Write 5–6 sentences about how you prepare food at home safely. Use these words: wash, separate, cook, fridge, safe.

Mini Quiz

1. What is one way to stop bacteria from spreading?
2. What tool helps you check if meat is cooked?
3. Why should you not mix raw and cooked food?
4. What do food labels show?
5. What is food poisoning?

1.2. WORLD HEALTH ORGANIZATION (WHO)

https://www.who.int/

WHO team consists of 8000+ professionals includes the world's leading public health experts, including doctors, epidemiologists, scientists and managers. Together, they coordinate the world's response to health emergencies, promote well-being, prevent disease and expand access to health care. By connecting nations, people and partners to scientific evidence they can rely on, WHO strives to give everyone an equal chance at a safe and healthy life.

WHO was founded in 1948 to work for the attainment of the highest possible level of health by all peoples. WHO works with 194 Member States, providing leadership on global health matters, shaping the health research agenda, setting norms and standards, and articulating evidence-based policy options. It also provides technical support to Member States, monitors and assesses health trends, funds medical research and provides emergency aid during disasters. Through its programmes, WHO also works to improve nutrition, housing, sanitation and working conditions around the world. It is headquartered in Geneva, Switzerland and has six regional offices around the world.

World Health Assembly

The World Health Assembly is WHO's highest level decision-making forum. Every year, delegates from all Member States convene at the World Health Assembly to set priorities and chart a course for global health progress

Member States

WHO works with all Member States to support them to achieve the highest standard of health for all people. WHO staff working in countries advise ministries of health and other sectors on public health issues and provide support to plan, implement and monitor health programmes.

The European Region (WHO/Europe)

WHO/Europe is one of WHO's six regional offices around the world. It serves the WHO European Region, which comprises 53 countries, covering a vast geographical region from the Atlantic to the Pacific oceans. WHO/Europe staff are public health, scientific and technical experts, based in the main office in Copenhagen, Denmark, in 7 technical centres and in country offices in 30 Member States. In addition, WHO/Europe coordinates with the European Union and its agencies.

World Health Organization in the Republic of Moldova

WHO Country Office, Republic of Moldova

WHO country offices represent the World Health Organization in its work to

- support the development of policies and strategies in the health sector and those influencing health;
- channel technical advice;
- promote and develop partnerships;
- promote the health dimension;
- share information on health topics.

The role of a WHO/Europe country office is also to respond to requests from the host country to support policy-making for sustainable health development, taking a holistic health-system approach. This includes providing guidance, building up local relationships to implement technical cooperation, making standards and agreements and ensuring that public health measures are coordinated and in place during crises.

The WHO Country Office, Republic of Moldova, was established in 1995, in Chisinau, to provide continuous support to health authorities and partners in improving population health through

evidence-based, sustainable public health and health care interventions as well as to advise on health in all policies.

The Country Office team consists of over ten persons: the WHO Representative/Head of Country Office, administrative and logistic support staff, as well as experts covering:

- health systems and public health
- public health services
- maternal and child health
- communicable diseases
- noncommunicable diseases
- human resources for health
- disaster preparedness and response.

https://www.facebook.com/OMSMoldova/

https://www.who.int/republic-of-moldova/about-us

FOOD AND AGRICULTURE ORGANIZATION (FAO) Efforts in Protecting Consumers

The FAO has been working tirelessly to ensure that consumers worldwide have access to safe and nutritious food. Some of their efforts include:

- Developing international food safety standards: The FAO works with the WHO to develop international standards for food safety. These standards provide a framework for countries to ensure that their food is safe for consumption.

- Capacity building: The FAO provides technical assistance to countries to help them improve their food safety systems. This includes training on food safety practices and developing infrastructure to support food safety.

- Risk assessment: The FAO conducts risk assessments to identify potential hazards in the food supply chain. This information is used to develop policies and regulations to ensure food safety.

Food safety is a critical aspect of our daily lives, and the FAO's efforts in protecting consumers are crucial in ensuring that everyone has access to safe and nutritious food. By working together, we can ensure that food safety is a top priority and that consumers worldwide can have confidence in the food they eat.

1.3. NATIONAL FOOD SAFETY AGENCY

The National Food Agency Safety, has the mission to ensure the implementation of state policies in the fields oriented to guarantee food safety and quality of food, including ethyl alcohol, alcoholic production, wine -making products, maintenance of a system of public measures meant to It ensures animal health and plant protection, harmlessness of food and raw materials, as well as consumer protection in the food field.

Agenția Națională pentru Siguranța Alimentelor

https://servicii.gov.md/en/organization/ANSA
https://www.ansa.gov.md/

Main Functions:

1. **Inspections** – Visit food companies and farms to check hygiene and food quality.
2. **Testing** – Take food samples and test for bacteria, chemicals, or other dangers.
3. **Certification** – Give safety certificates to clean and safe producers.
4. **Education** – Teach food workers and the public about food safety.
5. **Emergency Response** – Act fast when unsafe food is found.

Food Safety Registration Certificate

The Food Safety Registration Certificate is a permissive and necessary act for the economic agents who participate in the following activities:

1. Non-animal origin food safety activities;
2. Animal and non-animal origin food marketing activities, even from a distance;
3. Public food service activities and rural tourism;
4. Ecological agriculture activities;

The Food Safety Registration Certificate is a permissive act issued to people who independently practice food marketing.

Holding the Food Safety Registration Certificate is guaranteed for consumers to know that the food is according to the food safety requests.

https://servicii.gov.md/en/service/003001185

Sanitary-veterinary operating authorization

Sanitary and veterinary authorization - is an official document, issued by the competent sanitary veterinary authority, which certifies compliance with sanitary veterinary requirements in institutions and enterprises, which are subject to sanitary veterinary supervision.

Economic agents carrying out at least one of the activities mentioned in annex no. 6 can only activate if they have been subject to the veterinary sanitary authorization/registration procedure by the Agency.

https://servicii.gov.md/en/service/003000951

Phytosanitary certification for export or re-export

The phytosanitary certificate is an official document, which certifies that the plants, plant products and related goods subject to the phytosanitary quarantine regime intended for export, re-export meet the phytosanitary requirements of the country of destination. The phytosanitary control body issues phytosanitary certificates if the importing states impose such a requirement.

https://servicii.gov.md/en/service/003001198

Veterinary certification of products of animal origin

veterinary health certification involves carrying out veterinary checks, laboratory investigations and other veterinary health measures to establish the health status of animals and the harmlessness of products of animal origin and other products subject to veterinary health supervision for the protection of animal and public health, with the issuance of the appropriate veterinary health certificates by veterinarians.

The veterinarian, appointed by the Agency, will carry out the veterinary expertise and examine the results of the established laboratory tests at slaughterhouses and slaughter establishments (according to Annex 6, points 5.1 and 5.1.1) including for pig carcasses, tests by artificial digestion methods will be carried out. Veterinary certification for meat and by-products obtained from the slaughter of animals, and in the case of meat and by-products obtained from cow/ sheep/goats and horses animals - with the application of the health mark only after examination of the accompanying documents and verification of the data in the automated information system state register of animals.

https://servicii.gov.md/en/service/003000948

Certificate of Good Manufacturing Practice for veterinary medicinal products

Certificate of Good Manufacturing Practice (GMP) – certificate confirming the manufacturer's compliance with the Rules of Good Manufacturing Practice, issued as a result of inspection by the National Agency for Food Safety, in accordance with the recommendations of the World Organization of Animal Health (WOAH);

https://servicii.gov.md/en/service/003001839

Certificate of quality of propagating and planting material imported as required

Certificate of quality of imported propagating and planting material - a standardized document confirming the authenticity and compliance of propagating and planting material with the technical requirements of the Republic of Moldova, issued by the territorial subdivisions of the National Agency for Food Safety.

https://servicii.gov.md/en/service/003001826

Quality certificate of the propagating material and the imported planter if necessary

Certificate of quality of the propagating material and the imported planter - standardized document that confirms the authenticity and correspondence of the propagating material and planter to the technical requirements of the Republic of Moldova, issued by the territorial subdivisions of the National Agency for Food Safety.

https://servicii.gov.md/en/service/003001208

Certificate of conformity of the quality of fresh fruits and vegetables

Within the requirements for quality and marketing of fresh fruits and vegetables, the concept of quality is determined by the commercial appearance of the fresh products presented for sale, by the visual characteristics (freshness, size, shape and color) and conditioning (sorting, packaging, labeling and presentation) of them. The existence of a certificate of conformity of the quality of fresh fruit and vegetables is considered a factor to reduce the risk of non-compliance with quality requirements for fresh fruit and vegetables

This certificate is an optional document, which economic agents can obtain for products intended for import, export/re-export or in other cases where the economic agent wants to additionally attest that the products meet the quality requirements.

https://servicii.gov.md/en/service/003000870

Seed quality certificate/seed analysis bulletin for domestic use

Seed quality certificate – is issued for the sale of agricultural seeds on the territory of the republic and involves the determination of all the quality indices of the seeds (purity, germination, moisture, weight of 1000 grains).

The seed analysis bulletin - is issued for own seed use needs and involves the determination of a seed quality index, upon request.

PUBLIC SERVICES PROVIDED

- Sanitary-veterinary operating authorization
- Sanitary-veterinary authorization for means of transport
- Phytosanitary certification for export or re-export
- Veterinary certification of products of animal origin
- Certificate of Good Manufacturing Practice for veterinary medicinal products
- Certificate of quality of propagating and planting material imported as required
- Quality certificate of the propagating material and the imported planter if necessary

- Certificate of conformity of the quality of fresh fruits and vegetables
- Certificate of registration of the veterinary medicinal product
- Certificate of registration of technology of use in the State register of technology of use, confirming that the producer of distillers of the origina...
- Food Safety Registration Certificate
- Breed certificate of the queen bee
- Health certificate for food products
- Certificate of biological value
- Certificate for non-commercial movement of pets (dogs, cats, or ferrets)
- Seed quality certificate/seed analysis bulletin for domestic use
- Certificate of registration of economic agents for the production and/or processing and/or marketing of seeds
- Dissemination, upon request, of warning bulletins (for a harmful object)
- Carrying out checks in the field of plant protection
- Expertise on the phytosanitary status of the production lots
- Veterinary registration
- Registration of the warehouse for keeping phytosanitary products and fertilizers
- Animal movement recording
- Registration of the phytosanitary operator
- Hive passport
- Professional training of a professional user of plant protection products of hazard categories 1 and 2 of acute oral/dermal toxicity

1.4. CONSUMER PROTECTION

Consumer protection is the practice of safeguarding buyers of goods and services, and the public, against unfair practices in the marketplace. Consumer protection measures are often established by law. Such laws are intended to prevent businesses from engaging in fraud or specified unfair practices to gain an advantage over competitors or to mislead consumers. They may also provide

additional protection for the general public which may be impacted by a product (or its production) even when they are not the direct purchaser or consumer of that product. For example, government regulations may require businesses to disclose detailed information about their products—particularly in areas where public health or safety is an issue, such as with food or automobiles.

Consumer protection is linked to the idea of consumer rights and to the formation of consumer organizations, which help consumers make better choices in the marketplace and pursue complaints against businesses. Entities that promote consumer protection include government organizations (such as the Federal Trade Commission in the United States), self-regulating business organizations (such as the Better Business Bureaus in the US, Canada, England, etc.), and non-governmental organizations that advocate for consumer protection laws and help to ensure their enforcement (such as consumer protection agencies and watchdog groups).

A consumer is defined as someone who acquires goods or services for direct use or ownership rather than for resale or use in production and manufacturing.

Consumer's rights and interests are:

➢ **Right to Choose:** The consumer has the right to choose from a variety of products at a competitive price.
➢ **Right to be Informed:** The buyer should be informed of all the necessary details regarding that product like MRP, Ingredients, Branding and etc.
➢ **Right to Safety:** Before buying, a consumer can insist on the quality and guarantee of the goods. They should ideally purchase a certified product like ISI or AGMARK.
➢ **Right to be heard:** This means that if a consumer has a complaint, they can talk about it at a place where it will be heard and taken seriously like consumer court.
➢ **Right to seek compensation:** This means that if a consumer is treated unfairly or taken advantage of, they have the right to ask for help and compensation to make things right.
➢ **Right to Consumer Education:** Consumers should be aware of his/her rights and avoid exploitation. Ignorance can cost them more.

Consumer Responsibility

➢ **Responsibility to be aware:** A consumer has to be aware of the safety and quality of the products and services before purchasing them.
➢ **Responsibility to think independently:** Consumers should think carefully about what they want and need so that they can make their own choices confidently which leads to a good decision.
➢ **Responsibility to speak out:** Buyers/consumers should be fearless to speak out about their complaints and can tell traders what they exactly want.
➢ **Responsibility to complain:** Consumers have a duty to honestly and fairly voice their complaints about products or services by filing them.
➢ **Responsibility to be an Ethical Consumer:** They should be fair and avoid any tricky or dishonest actions.

1.5. RISKS ANALYSIS AND CRITICAL CONTROL POINTS OF HACCP

HACCP is a management system in which 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.

HACCP is designed for use in all segments of the food industry from growing, harvesting, processing, manufacturing, distributing, and merchandising to preparing food for consumption. Food safety systems based on the HACCP principles have been successfully applied in food processing plants, retail food stores, and food service operations. The seven principles of HACCP have been universally accepted by government agencies, trade associations and the food industry around the world.

HACCP Principles

1. **Conduct a hazard analysis**

Plan to determine the food safety hazards and identify the preventive measures that can be applied to control these hazards. A food safety hazard is any biological, chemical, or physical property that may cause a food to be unsafe for human consumption.

2. **Identify critical control points**

A critical control point (CCP) is a point, step, or procedure in a food manufacturing process at which control can be applied and, as a result, a food safety hazard can be prevented, eliminated, or reduced to an acceptable level.

3. **Establish critical limits for each critical control point**

A critical limit is the maximum or minimum value to which a physical, biological, or chemical hazard must be controlled at a critical control point to prevent, eliminate, or reduce that hazard to an acceptable level.

4. **Establish critical control point monitoring requirements**

Monitoring activities are necessary to ensure that the process is under control at each critical control point. In the United States, the FSIS requires that each monitoring procedure and its frequency be listed in the HACCP plan.

5. **Establish corrective actions**

These are actions to be taken when monitoring indicates a deviation from an established critical limit. The final rule requires a plant's HACCP plan to identify the corrective actions to be taken if a critical limit is not met. Corrective actions are intended to ensure that no product is injurious to health or otherwise adulterated as a result if the deviation enters commerce.

6. **Establish procedures for ensuring the HACCP system is working as intended**

Validation ensures that the plans do what they were designed to do; that is, they are successful in ensuring the production of a safe product. Plants will be required to validate their own HACCP plans. FSIS will not approve HACCP plans in advance, but will review them for conformance with the final rule.

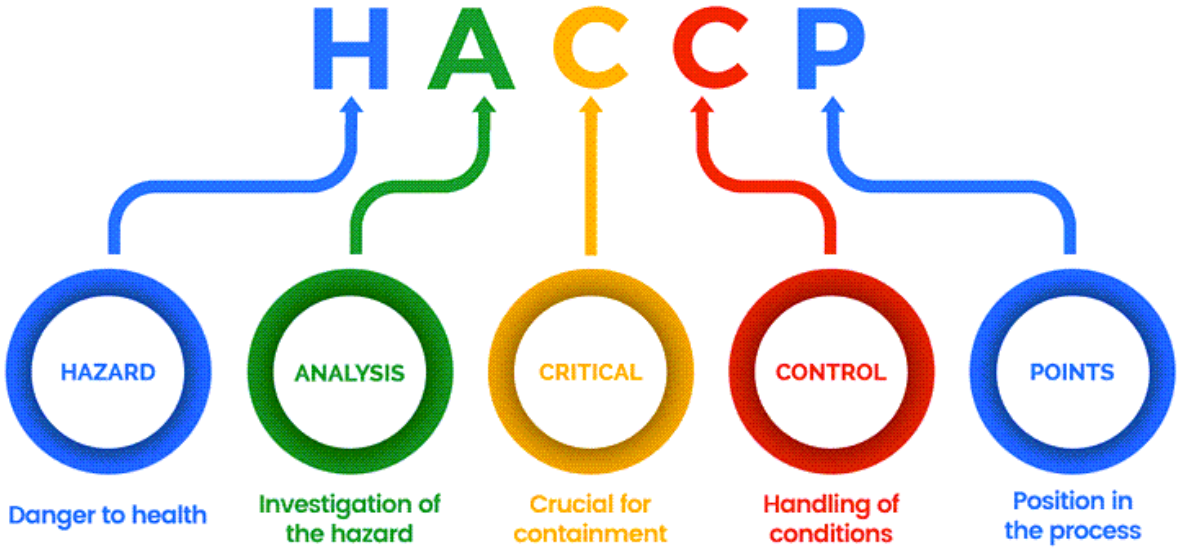
Verification ensures the HACCP plan is adequate, that is, working as intended. Verification procedures may include such activities as review of HACCP plans, CCP records, critical limits and microbial sampling and analysis. FSIS is requiring that the HACCP plan include verification

tasks to be performed by plant personnel. Verification tasks would also be performed by FSIS inspectors. Both FSIS and industry will undertake microbial testing as one of several verification activities.

Verification also includes 'validation' – the process of finding evidence for the accuracy of the HACCP system (e.g. scientific evidence for critical limitations).

7. Establish record keeping procedures

The HACCP regulation requires that all plants maintain certain documents, including its hazard analysis and written HACCP plan, and records documenting the monitoring of critical control points, critical limits, verification activities, and the handling of processing deviations. Implementation involves monitoring, verifying, and validating of the daily work that is compliant with regulatory requirements in all stages all the time. The differences among those three types of work are given by Saskatchewan Agriculture and Food.



1.6 EU'S RAPID ALERT SYSTEM FOR FOOD AND FEED (RASFF)

Ensuring food safety is a critical issue that affects everyone worldwide, from producers to consumers. One of the measures taken by the EU to ensure food safety is the Rapid Alert System for Food and Feed (RASFF), which is managed by the European Commission's Directorate-General for Health and Food Safety. It is an online system that facilitates the prompt exchange of information between countries and the Commission about potential food and feed risks. RASFF allows for a quick response to food safety issues, thus preventing further exposure to hazardous food products.

What is RASFF?
RASFF stands for the **Rapid Alert System for Food and Feed**. It is a tool used by the **European Union (EU)** to share important information about food and feed safety. When a food product is dangerous or harmful, RASFF helps countries act quickly to protect people.

RASFF is like a warning system. It lets food safety authorities across Europe share alerts and take action. This way, dangerous food can be removed from the market fast — before it causes harm.

Why Was RASFF Created?
In the past, when a food product was found to be dangerous, countries had no easy way to warn each other. This caused delays and risked public health. To solve this, the EU created RASFF in 1979. Since then, RASFF has helped stop many unsafe foods from reaching people.

The system works by identifying potential food safety risks and then informing the relevant authorities of the member states. This exchange of information allows for prompt action to be taken to prevent further exposure to these hazardous products.

RASFF data is accessible to the public, allowing consumers to be informed about food safety risks in real-time. This transparency helps to build consumer trust in the food industry and encourages producers to take food safety seriously.

The system also allows for the exchange of information between the EU and non-EU countries. This collaboration helps to promote global food safety and prevent the spread of unsafe food products across borders.

RASFF covers a wide range of potential risks, including chemical contaminants, allergens, and microorganisms. For example, in 2020, RASFF issued an alert for sesame seeds contaminated with ethylene oxide, a harmful pesticide.

Types of Alerts in RASFF There are different types of messages in the system:

1. **Alert Notification** – A serious risk has been found. Food must be removed quickly.
2. **Information Notification** – A risk is found, but the product is not on the market anymore.
3. **Border Rejection Notification** – Unsafe food is stopped at the EU border and not allowed in.

Example of a RASFF Alert A company in Germany finds salmonella in imported chicken from another country. Germany sends an alert to RASFF. Other EU countries check if they also have this chicken. If they do, they remove it from shelves and warn customers.

Common Risks Notified to RASFF

- Harmful bacteria (like Listeria, E. coli, Salmonella)
- High levels of chemicals (like pesticides)
- Allergens not listed on labels (like nuts, gluten)
- Plastic or metal pieces in food
- Contaminated animal feed

Benefits of RASFF

- Protects consumer health
- Stops the spread of unsafe food
- Allows fast action across borders
- Builds trust in the food system

How Fast is RASFF? RASFF works 24 hours a day, 7 days a week. Alerts are often shared in a few hours. This helps stop the spread of dangerous food quickly.

Important Vocabulary

- **Alert** – A warning about danger
- **Feed** – Food given to animals
- **Notification** – A message or report
- **Border** – The line between two countries
- **Contaminated** – Dirty or unsafe

Reading Activity: True or False?

1. RASFF helps countries in Europe share food safety alerts.
2. Only EU countries can use RASFF.
3. Food with salmonella is safe to eat.
4. Alerts in RASFF take several weeks to be shared.
5. RASFF helps protect people's health.

Speaking Practice Work in pairs. Ask and answer:

- Have you heard about RASFF before?
- What do you think about food alerts?
- What should shops do when they get a food alert?

Mini Quiz

1. What does RASFF stand for?
2. When was RASFF started?
3. What is a border rejection alert?
4. What kind of risks does RASFF report?

Real-Life Case Study: Metal in Cookies In 2022, a bakery in France found small pieces of metal in their cookies. They sent an alert through RASFF. Other countries that sold these cookies removed them from the market. No one was hurt, thanks to the fast action.

2. FOOD STABILITY

2.1. FOOD ENERGETIC VALUE

What is Food Energetic Value?

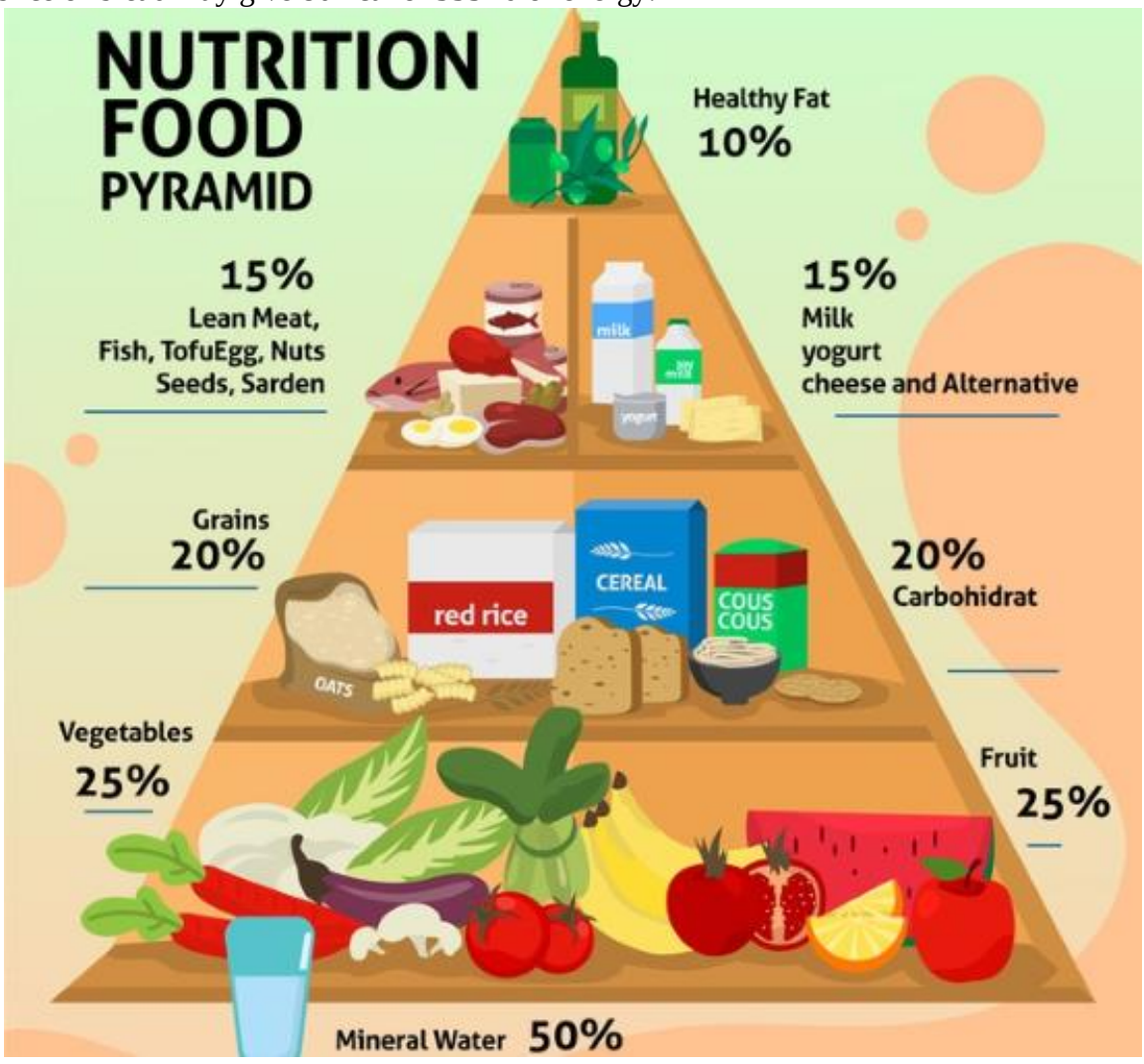
Food energetic value tells us how much energy we get from eating food. This energy is important for everything we do: walking, thinking, working, and sleeping. The more energy we use, the more we need from our food.

The energy from food is measured in **kilocalories (kcal)** or **kilojoules (kJ)**. Most food labels show energy in both units.

- 1 kilocalorie (kcal) = 4.184 kilojoules (kJ)

For example:

A slice of bread may give 80 kcal or 335 kJ of energy.



Why Is Energy Important?
Our body needs energy for:

- Movement (walking, running)
- Thinking and brain work
- Digesting food
- Keeping our heart beating and body warm

If we eat more energy than we need, our body stores it as **fat**. This can cause **weight gain** and health problems. If we eat less than we need, we may feel **tired**, **weak**, or lose weight.

Main Nutrients That Give Energy

1. **Carbohydrates** – Main energy source. Found in bread, pasta, rice, fruit, and sugar.
    - 1 gram = 4 kcal
2. **Proteins** – Help build and repair body tissues. Found in meat, eggs, fish, and beans.
    - 1 gram = 4 kcal
3. **Fats** – Give more energy but should be eaten in small amounts. Found in oil, butter, and nuts.
    - 1 gram = 9 kcal

Water, vitamins, and minerals do not give energy, but they are essential for health.

Daily Energy Needs Energy needs depend on age, gender, and activity level.

- **Children (7–10 years)**: 1,700–2,000 kcal/day
- **Teenagers**: 2,000–2,800 kcal/day
- **Adult women**: 1,800–2,200 kcal/day
- **Adult men**: 2,200–2,800 kcal/day
- **Very active people**: may need 3,000 kcal or more

If you work in food service or prepare meals, it is helpful to understand energy values to meet customers' needs.

Balanced Diet = Balanced Energy A healthy diet gives you enough energy without too much. A **balanced plate** includes:

- Carbohydrates: about 50–60% of daily energy
- Proteins: about 10–15%
- Fats: about 25–30%

Too many calories from sugar or fat can lead to **obesity**, **diabetes**, and **heart disease**.

Important Vocabulary

- **Energy** – Power from food used by the body
- **Kilocalorie (kcal)** – A unit of energy
- **Nutrients** – Substances in food needed for health
- **Carbohydrate** – A nutrient that gives energy
- **Protein** – A nutrient that builds body tissues
- **Fat** – A high-energy nutrient
- **Label** – Information printed on food packaging

Reading Activity: Match the Pairs Match each nutrient to its function:

- Carbohydrate → Gives quick energy ✓
- Protein → Builds and repairs tissues ✓
- Fat → Gives more energy than carbs ✓
- Water → Does not give energy ✓

Writing Task Write 5–6 sentences about a meal you eat. Say what energy it gives and which nutrients it has. Use these words: energy, protein, fat, label, calories.

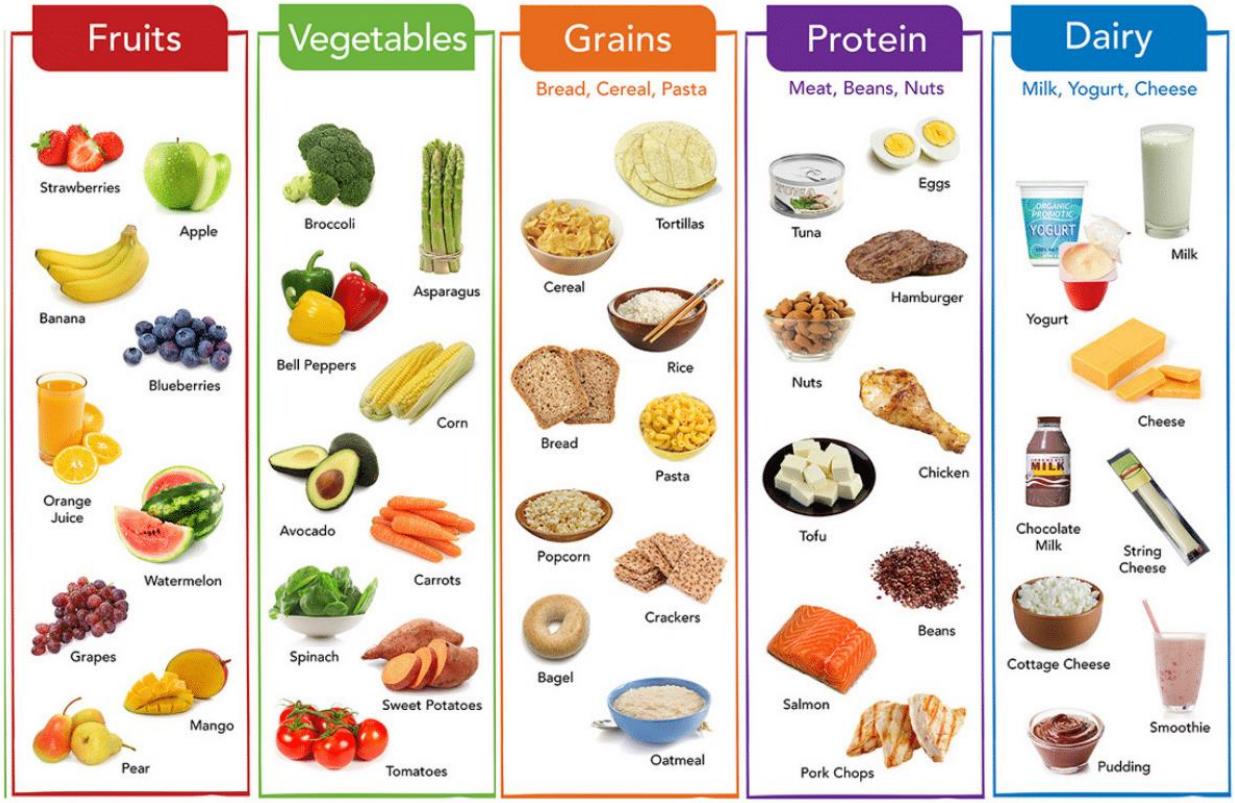
Mini Quiz

1. What unit is used to measure food energy?
2. Which nutrient gives the most energy per gram?
3. Do vitamins give energy?
4. What happens if we eat more energy than we need?
5. What percentage of our energy should come from fat?

2.2. FOOD GROUPS

What Are Food Groups?

Food groups are categories of foods that provide similar nutrients. By eating from all food groups, we can get the vitamins, minerals, and energy our bodies need.



The five main food groups are:

1. **Fruits**
2. **Vegetables**
3. **Grains**
4. **Proteins**
5. **Dairy**

Each group has a special role in keeping us healthy. Let's learn more about each one.

1. Fruits

Fruits are sweet and full of vitamins, especially **vitamin C** and **fiber**. They are low in fat and calories but high in energy and nutrients.

Examples: apples, oranges, bananas, berries, melons
Benefits:

- Help your body fight sickness (boost immunity)
- Improve skin and digestion

Tip: Eat fresh, frozen, or dried fruit. Avoid too much fruit juice (it has a lot of sugar).

2. Vegetables
Vegetables give us vitamins, minerals, and fiber. They help with digestion and protect against disease.
Examples: carrots, broccoli, spinach, tomatoes, cabbage
Benefits:

- Keep your eyes, skin, and bones healthy
- Lower the risk of heart disease and cancer

Tip: Eat different colors of vegetables. Each color gives different nutrients.

3. Grains
Grains give us **carbohydrates**, our main source of energy. Whole grains are better than refined grains because they have more fiber.
Examples: bread, rice, pasta, oats, corn
Benefits:

- Give long-lasting energy
- Help with digestion (if whole grain)

Tip: Choose whole grains like whole-wheat bread and brown rice.

4. Proteins
Proteins help build muscles and repair body tissues. They also support the immune system.
Examples: meat, fish, eggs, beans, nuts, lentils
Benefits:

- Build and repair tissues
- Help make hormones and enzymes

Tip: Choose lean meats, and eat plant proteins like beans and lentils often.

5. Dairy
Dairy products give **calcium**, which is important for strong bones and teeth. They also contain **protein** and **vitamin D**.
Examples: milk, cheese, yogurt
Benefits:

- Strengthen bones and teeth
- Support growth, especially in children

Tip: Choose low-fat or fat-free dairy products.

Balanced Diet: Use All Food Groups
A balanced plate includes:

- Half fruits and vegetables
- One-quarter grains (preferably whole)
- One-quarter protein
- One serving of dairy on the side

Eating from all food groups gives the body everything it needs to grow, work, and stay healthy.

Important Vocabulary

- **Nutrient** – A substance in food that helps the body grow and stay healthy
- **Fiber** – Helps digestion and makes you feel full

- **Vitamins** – Help the body function (like vitamin C and D)
- **Minerals** – Help build strong bones and teeth (like calcium)
- **Whole grain** – Grain that has not been refined (more healthy)
- **Lean meat** – Meat with little fat

Reading Activity: Fill in the Gaps
Complete the sentences with the correct word:
(Proteins) (Vegetables) (Fruits) (Dairy) (Grains)

1. Milk is in the _____ group.
2. Carrots and broccoli are _____.
3. Rice and bread are examples of _____.
4. Apples and oranges are _____.
5. Meat and beans are in the _____ group.

Speaking Practice Work in pairs or small groups:

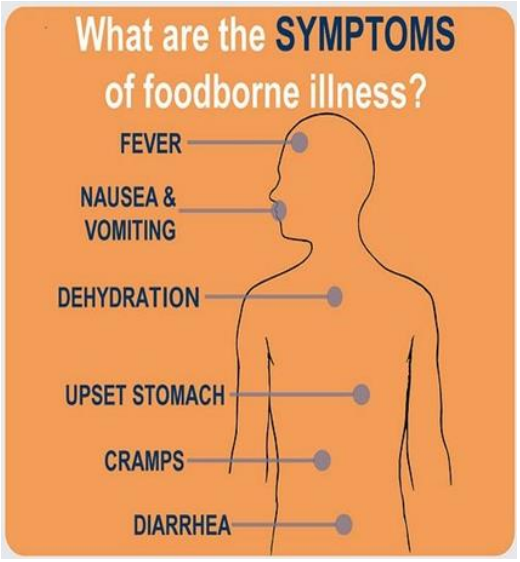
- What food group do you eat the most?
- What food group do you need to eat more of?
- What is your favorite healthy food?

Writing Task Write about your favorite meal. Include ingredients from at least 3 food groups. Describe why the meal is healthy. Use these words: protein, vegetables, fruits, energy, dairy.

Mini Quiz

1. Which food group gives the most vitamin C?
2. Which group gives us calcium?
3. What are examples of whole grains?
4. Why are vegetables important?
5. Which food group helps build muscles?

2.3 MICROORGANISMS AND FOOD TOXI-INFECTIONS



What types of contaminants cause food poisoning?

Things that may contaminate food and water include:

- Bacteria.
- Viruses.
- Parasites.
- Fungi.
- Toxins.
- Chemicals.

There are more than 250 specific types of food poisoning. Some of the most common causes include:

- *Salmonella*: Raw eggs and undercooked poultry are common sources of salmonella poisoning. It can also occur from beef, pork, vegetables and processed foods containing these items. *Salmonella* is the most common bacterial cause of food poisoning in the U.S. It causes the highest number of hospitalizations and deaths from food poisoning.
- *E. coli*: Usually found in undercooked meat and raw vegetables, *E. coli* bacteria produce a toxin that irritates your small intestine.
- *Listeria*: Bacteria in soft cheeses, deli meats, hot dogs and raw sprouts can cause listeriosis, an infection that's especially dangerous during pregnancy.
- Norovirus: You can get norovirus by eating undercooked shellfish, leafy greens or fresh fruits. You can also get it by consuming food prepared by a sick person. This is the virus most commonly associated with stomach flu.
- Hepatitis A: Viral hepatitis A can be spread through shellfish, fresh produce or water and ice contaminated by poop. It's not a chronic infection like other hepatitis viruses, but it can affect your liver.
- *Staphylococcus*: A staph infection occurs when people transfer the staph bacteria from their hands to food. Foods that are often implicated are meats, poultry, milk and dairy products, salads, cream-filled baked goods and sandwich fillings. The bacteria can affect many parts of your body.
- *Campylobacter*: This common bacterial infection producing severe GI upset can linger for weeks. Usually, culprits are undercooked poultry, meat or eggs, poorly processed meats, contaminated vegetables and raw (unprocessed) milk or water sources. It's also spread by cross-contamination.
- *Shigella*: *Shigella* bacteria is most typically found in uncooked vegetables, shellfish and cream or mayonnaise-based salads (tuna, potato, macaroni, chicken). It can cause blood or mucus in your diarrhea, which is why the infection is sometimes called bacillary dysentery.

Contaminant	Appearance of symptoms	Affected foodstuffs
Campylobacter	2 to 5 days	Poultry meat. Other sources are unpasteurised milk and/or contaminated water.
Clostridium botulinum	12 to 72 days	Canned food and food kept at high temperatures for too long.
Clostridium perfringens	8 to 16 days	Meats, stews and sauces.
Escherichia coli	1 to 8 days	Beef contaminated with faeces during processing.
Hepatitis A	28 days	Raw, ready-to-eat products and seafood from contaminated water.
Listeria monocytogenes	9 to 48 hours	Sliced meats, marinated cold meats, milk, unpasteurized cheeses, raw and unwashed products, ready-to-eat products.
Norovirus (virus tipo Norwalk)	12 to 48 hours	Raw and ready-to-eat products and seafood from contaminated water.
Rotavirus	1 to 3 days	Raw and ready-to-eat products.
Salmonella	1 to 3 days	Raw or contaminated meat, poultry, milk and egg products. It can survive bad cooking.
Staphylococcus aureus	1 to 6 hours	Ready-to-eat meats and salads, cream sauces and cream-filled pastries.
Vibrio	1 to 7 days	Raw oysters and raw or undercooked clams, whole scallops and mussels.

Campylobacter	2 to 5 days	Poultry meat. Other sources are unpasteurised milk and/or contaminated water.
Clostridium botulinum	12 to 72 days	Canned food and food kept at high temperatures for too long.
Clostridium perfringens	8 to 16 days	Meats, stews and sauces.
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Rotavirus	1 to 3 days	Raw and ready-to-eat products.
Salmonella	1 to 3 days	Raw or contaminated meat, poultry, milk and egg products. It can survive bad cooking.
Staphylococcus aureus	1 to 6 hours	Ready-to-eat meats and salads, cream sauces and cream-filled pastries.

What makes food poisoning worse?

Certain foods and drinks can make food poisoning worse, including:

- Fatty and fried foods.
- Spicy foods.
- Dairy.
- Caffeine.
- Alcohol.
- High-fiber foods.
- Nicotine.
- Acidic foods.

Foodborne illness

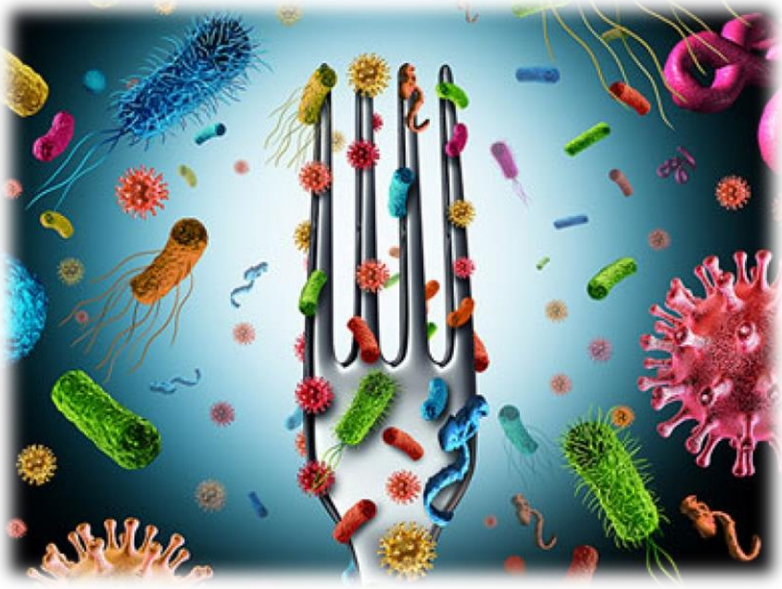
A foodborne illness is an infection or illness carried or transmitted to people by food containing harmful substances.

Types of foodborne illness

1. **Foodborne infection** is caused by eating food contaminated with microorganisms and once in the body, the organisms continue to reproduce and cause illness. Bacteria causing infections include Salmonellosis and Listeriosis. Viruses include Hepatitis A, and norovirus. Parasites include Trichinella and Anisakis.

2. **Foodborne intoxication** is caused by consuming food containing a toxin or chemical. Toxins may be caused by bacteria due to waste products released by the microorganisms. Clostridium botulinum or Staphylococcus aureus are examples of foodborne illness intoxications. Toxins are also the natural part of some plants such as mushrooms. Seafood toxins include scombroid and ciguatera. Chemicals and poisons such as cleaning compounds, pesticides, sanitizers, and metals cause intoxications.

Toxin-mediated infections are the result of eating food containing harmful microorganisms which produce toxins while in the intestinal tract. Viruses and parasites do not cause toxin mediated infection. Bacteria such as Shigella and Shiga toxin- producing E. coli cause toxin mediated infection.



2.4 GENETICALLY MODIFIED ORGANISMS

What Are Genetically Modified Organisms (GMOs)?
Genetically Modified Organisms, or GMOs, are plants or animals whose DNA has been changed by scientists. The changes are made to improve the food. For example, GMOs can help food last longer, grow faster, or resist pests and disease.

How Are GMOs Made? Scientists change the DNA of a plant or animal in a lab. This is different from traditional farming where farmers choose the best seeds. With GMOs, scientists can add genes from one species to another. For example, a gene from a bacteria might be added to corn to protect it from insects.

Examples of GMO Foods

- Corn (GMO corn resists insects)
- Soybeans (GMO soy grows faster and needs less water)
- Tomatoes (some stay fresh longer)
- Potatoes (some resist bruises and diseases)
- Papaya (GMO papaya resists a virus)

These foods are common in many countries. In some places, GMO food must be labeled.

Why Are GMOs Used?

1. **To grow more food** – GMOs can grow faster and survive in bad weather.
2. **To reduce pesticide use** – Some GMOs are made to fight insects without needing chemicals.
3. **To improve nutrition** – Scientists can add vitamins to GMO foods (like Golden Rice with Vitamin A).
4. **To lower food prices** – GMO crops are cheaper to grow, so the price in the store may be lower.

Are GMOs Safe? Many scientists and health groups (like the World Health Organization) say that GMO foods are safe to eat. But some people are worried about:

- Long-term health effects
- Allergies
- Damage to the environment
- Big companies controlling seeds and farming

This is why GMOs are carefully tested before they are sold.
Labeling and Laws in the EU In the European Union (EU), all foods with more than 0.9% GMO must have a label. This helps people make informed choices. Some countries ban or restrict GMO farming, but allow import of GMO animal feed.

Vocabulary Box:

- **Gene** – Part of DNA that gives information
- **Pesticide** – Chemical used to kill pests
- **Nutrition** – The health value of food
- **Virus** – A tiny germ that causes disease
- **Allergy** – When the body reacts badly to something

Reading Practice: True or False?

1. GMO foods can grow faster than normal food.
2. All countries allow GMO crops.
3. GMO tomatoes are made to taste sweeter.
4. GMO foods are always dangerous.
5. GMO soybeans need more water than regular soybeans.

Speaking Practice In pairs, talk about these questions:

- Do you think GMO foods are helpful or harmful? Why?
- Have you eaten food with GMOs? How do you know?
- Should food labels say if a food has GMOs? Why or why not?

Writing Task Write a short opinion paragraph (6–8 sentences): "Should GMO food be used in schools and hospitals?"
Use these words: safe, nutrition, environment, health, choice.

Mini Quiz

1. What does GMO stand for?
2. Name two foods that are often genetically modified.
3. What is one benefit of GMOs?
4. What is one concern about GMOs?
5. How can people know if a food has GMOs in the EU?

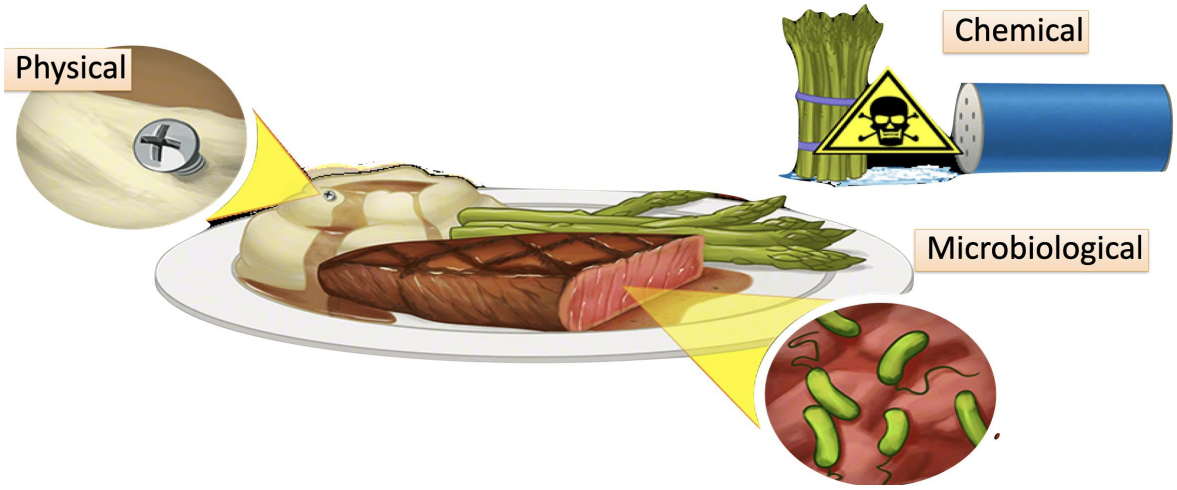
2.5 POLLUTION AND CHEMICAL CONTAMINATION

What Is Pollution in Food?

Pollution in food means harmful substances are present in the food we eat. These substances can come from the air, water, or soil, or from the way food is processed or packaged. When these pollutants enter food, they can be dangerous for human health.

Types of Pollution That Affect Food:

1. **Chemical pollution** – From pesticides, heavy metals, and industrial waste
2. **Biological pollution** – From bacteria, viruses, or parasites (covered in another chapter)
3. **Physical pollution** – From glass, plastic, or metal pieces in food



Sources of Chemical Contamination

1. **Pesticides and Herbicides** – Used in farming to kill pests and weeds. They can stay on fruits and vegetables if not washed properly.
2. **Heavy Metals** – Like lead, mercury, and cadmium. These can come from polluted water or soil.
3. **Industrial Waste** – Factories may release chemicals into the environment, which can affect crops and animals.
4. **Plastic Packaging** – Some plastics contain harmful substances (like BPA) that can get into food.
5. **Food Additives** – Some chemicals are added to improve taste, color, or shelf life. If used too much, they can be harmful.

Common Chemicals Found in Contaminated Food

- **Pesticides** – Used in farming; can cause health problems if too much remains on food
- **Dioxins** – Come from burning plastic; can get into food and build up in the body
- **Lead** – A heavy metal; harmful to the brain and nervous system
- **BPA** – Found in some plastic containers; can affect hormones
- **Nitrates** – Used in meat products; too much can affect blood and breathing

Effects of Chemical Pollution on Health

- Headaches
- Stomach pain
- Allergies
- Hormonal problems
- Cancer (in serious or long-term exposure)
- Problems with child development (especially from lead and mercury)

Preventing and Reducing Chemical Contamination

1. **Wash fruits and vegetables** before eating
2. **Choose organic food** when possible (it uses fewer chemicals)
3. **Avoid processed food** with too many additives
4. **Use glass or stainless steel containers** instead of plastic
5. **Check food labels** for added chemicals or preservatives
6. **Store food safely** to avoid contamination

Important Vocabulary

- **Contamination** – When something harmful is added
- **Pesticide** – A chemical used to kill insects on crops
- **Heavy metal** – A toxic element like lead or mercury
- **Additive** – A substance added to food to change its taste, color, or shelf life
- **Residue** – Small amounts of chemicals left on food

Reading Task: Match the Terms Match the chemical with its danger:

- Lead → Affects the brain
- BPA → Affects hormones
- Dioxins → Can cause cancer
- Nitrates → Can hurt blood and breathing
- Pesticides → Kill insects, but harmful to humans too

Speaking Practice Discuss these questions in pairs:

- How can we reduce chemical pollution in our food?
- Do you read labels when shopping for food? Why or why not?
- What types of food do you think are safest to eat?

Mini Quiz

1. What are pesticides used for?
2. Name one heavy metal that can contaminate food.
3. What does BPA come from?
4. Who is most at risk from food pollution?
5. How can you reduce your exposure to harmful chemicals in food?

3.1 ORGANIC PRODUCT REQUIREMENTS. ORGANIC VS NATURAL PRODUCTS

What Are Organic Products?

Organic products are made without using synthetic chemicals, pesticides, genetically modified organisms (GMOs), or artificial additives. They are grown or produced using natural methods that protect the environment, animal welfare, and human health.

Organic Farming Means:

- No synthetic pesticides or herbicides
- No GMOs
- No chemical fertilizers
- No antibiotics or growth hormones in animals
- Animals are kept in humane and natural conditions

Organic Labels and Certification To be labeled as "organic," products must meet strict rules. In the European Union (EU), organic products must have an official certification and display the green EU organic logo.

Example Labels:

- EU Organic (green leaf logo)
- USDA Organic (United States)
- Bio (Germany and other EU countries)

Only certified products can use these labels. This helps consumers know they are buying real organic food.

Requirements for Organic Products

1. **Farming Practices** – Must use crop rotation, compost, and natural pest control
2. **Animal Welfare** – Animals must have access to outdoors and natural feed
3. **Food Processing** – Limited use of preservatives and processing aids
4. **Traceability** – All ingredients and production steps must be checked and recorded

Benefits of Organic Products

- Fewer chemicals and pesticide residues
- Better for the environment (less pollution)
- Higher animal welfare standards
- May have more nutrients (some studies show higher vitamins or antioxidants)
- Better taste (many people say organic food tastes fresher)

What Are Natural Products?

Natural products come from nature and are not made in a lab. But "natural" is not the same as "organic." In many countries, the term "natural" is not controlled by law. This means any company can use it, even if the product has chemicals or is processed.

Key Differences: Organic vs. Natural

Feature	Organic	Natural
Controlled by law	Yes	Often no
Uses pesticides	No or very limited	Sometimes
GMOs allowed?	No	Maybe
Animal treatment rules	Yes	No
Certification required	Yes	No

How to Know If a Product Is Truly Organic

- Look for the **EU Organic logo** or other official labels
- Read the **ingredient list**
- Check if the product is certified by a trusted body

Important Vocabulary

- **Organic** – Grown or made without artificial chemicals
- **Synthetic** – Made by humans in a lab or factory
- **Certification** – Official document to prove something is true
- **Residue** – Small amounts left behind
- **Humane** – Kind and respectful to animals

Reading Activity:

Fill in the Blanks

1. Organic farming does not use _____ pesticides.
2. Animals on organic farms must be treated _____.
3. The EU organic logo looks like a green _____.
4. The word "natural" is not always _____ by law.
5. Organic food is better for the _____.

Speaking Practice Ask and answer with a partner:

- Do you buy organic food? Why or why not?
- How do you know if a product is really organic?
- Is it easy to find organic food in your country?
- What are the benefits of eating organic food?

Writing Task Write a short paragraph (5–7 sentences) about why someone might choose organic food. Use these words: healthy, environment, pesticide, animals, label.

Mini Quiz

1. What does an organic label mean?
2. Are natural products the same as organic?
3. What is not allowed in organic farming?
4. Why do people choose organic food?
5. What logo shows a product is organic in the eu?

3.2 ORGANIC FOOD PRODUCTS, ORGANIC CLOTHING PRODUCTS, ORGANIC PERSONAL CARE PRODUCTS

What Are Organic Products Beyond Food?

Organic products are not only found in supermarkets. Today, people can choose organic options in many parts of life — food, clothing, and personal care. These products are made in ways that protect human health, animals, and the environment.

Organic Food Products Organic food is the most common type of organic product. It includes:

- Fruits and vegetables
- Dairy (milk, cheese, yogurt)
- Meat and eggs
- Bread and cereals
- Tea, coffee, and herbs

What Is Organic Food?

Organic food comes from farming methods that work with nature. Farmers use natural fertilizers like compost and plant rotation to grow food. They do not use artificial pesticides, hormones, or antibiotics.

Types of Organic Food:

- Fruits and vegetables
- Dairy products: milk, cheese, yogurt
- Eggs and meat
- Grains and cereals: rice, oats, bread
- Herbs, spices, tea, coffee

Organic Farming Methods:

- Use of compost and natural fertilizers
- Crop rotation and cover crops to protect soil
- Animals raised in open areas with organic feed
- No genetic modification (non-GMO)

Benefits of Organic Food

1. **Healthier for People** – Fewer chemicals and additives
2. **Better for the Environment** – Less pollution, safer for animals and water
3. **Good for Soil and Bees** – Natural methods keep land and insects healthy
4. **Tastes Better** – Many people say organic food has more flavor

Labeling Organic Food To be called "organic," food must follow strict rules. Different countries have their own labels.

Examples of Organic Labels:

- USDA Organic (USA)
- EU Organic (European Union)
- Soil Association Organic (UK)
- EcoCert (International)

What Do These Labels Mean?

- 95% or more of ingredients are organic
- No GMOs, no synthetic pesticides
- Environmentally safe farming

How Are They Made?

- No chemical pesticides or fertilizers
- No genetically modified organisms (GMOs)
- Animals are raised without antibiotics or hormones
- No artificial colors, flavors, or preservatives

Why People Choose Organic Food:

- Healthier and safer
- Better taste
- Supports local and sustainable farms

Organic Clothing Products

Organic clothing is made from natural fibers grown without harmful chemicals.

Examples of Organic Fibers:

- Organic cotton
- Organic wool
- Organic hemp
- Organic linen

How Are They Different?

- Made without chemical dyes or bleaches
- Grown with less water and no toxic pesticides
- Workers often have better conditions and fair wages

Benefits of Organic Clothing:

- Softer and gentler on the skin
- Safer for workers and the environment
- Biodegradable (breaks down naturally in nature)

Reading Task: True or False

1. Organic cotton uses a lot of pesticides.
2. Organic clothes are better for sensitive skin.
3. Organic wool comes from sheep raised with natural feed.

Organic Personal Care Products Personal care includes items we use every day, like:

- Shampoo and conditioner
- Soap and body wash
- Toothpaste
- Creams and lotions
- Makeup and deodorant

What Makes Them Organic?

- **No synthetic chemicals** like parabens, sulfates, or silicones
- **No animal testing** – cruelty-free
- **Natural fragrance and color** – from herbs, flowers, and fruits
- **Biodegradable packaging** – safe for the environment

Common Organic Ingredients:

- Aloe vera
- Tea tree oil
- Coconut oil
- Lavender
- Shea butter
- Olive oil

Why Use Organic Personal Care Products?

1. **Healthier Skin and Hair** – Natural oils and herbs protect and nourish
2. **Fewer Allergies** – No harsh chemicals to irritate skin
3. **Eco-Friendly** – Ingredients are grown without pollution, packaging is often recyclable
4. **Supports Sustainable Brands** – Helps companies that care for people and the planet

Mini Quiz

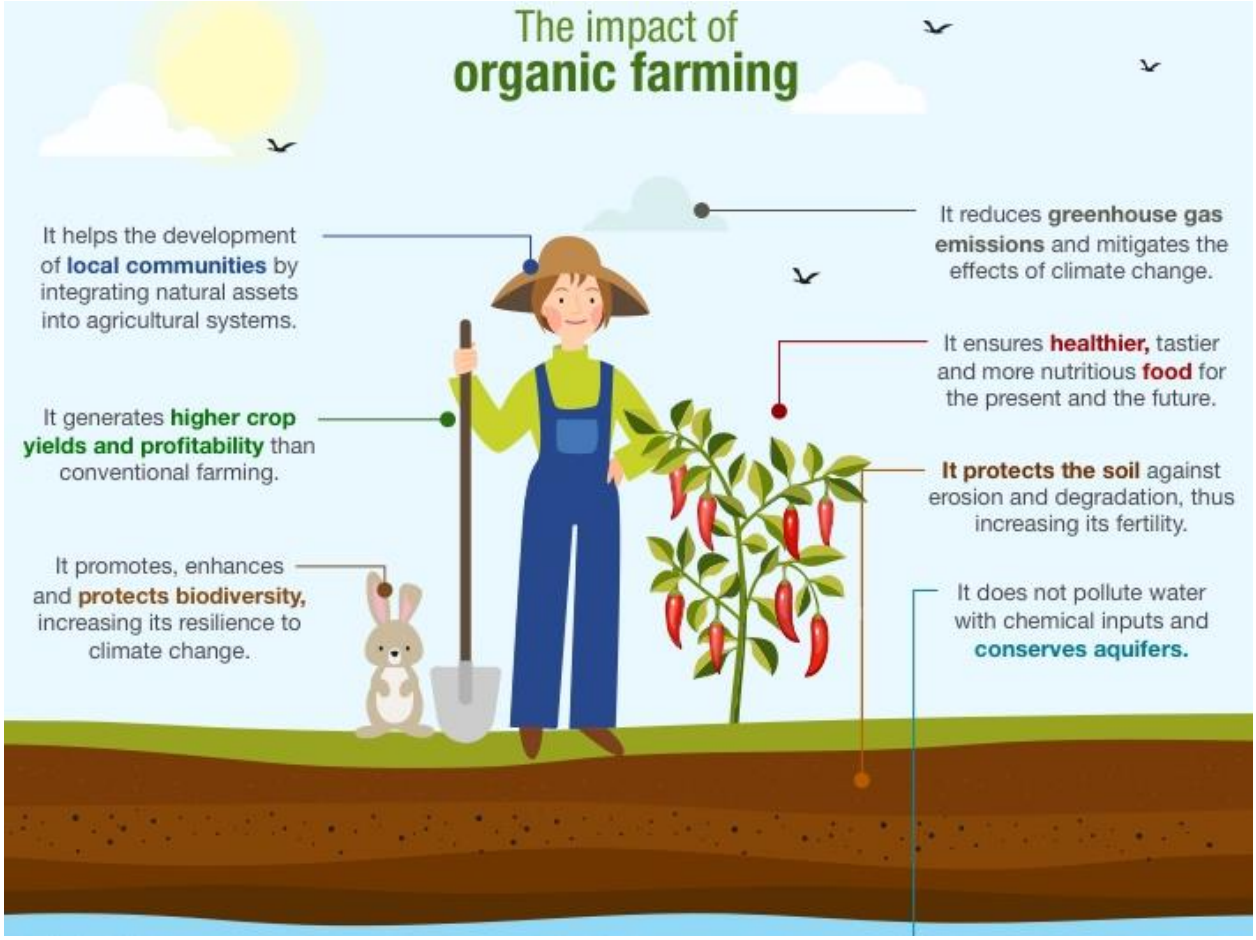
1. What is organic clothing made from?
2. Name one benefit of organic shampoo.
3. What does "cruelty-free" mean?
4. Why are organic personal care products better for the environment?

Speaking Practice Ask a partner:

- Do you use any organic products?
- Would you buy organic clothing? Why or why not?
- What is important to you when buying personal care products?

3.3 ORGANIC FARMING

Organic farming is a method of growing food without using synthetic chemicals or genetically modified organisms (GMOs). It focuses on natural processes to keep the soil healthy and protect the environment. This chapter explains how organic farming works and why it is important for food safety and sustainability.



What Is Organic Farming?

- Organic farming avoids artificial fertilizers and pesticides.
- Uses natural compost and animal manure to enrich the soil.
- Farmers use crop rotation to prevent soil damage and pests.
- Animals are raised in natural conditions with organic feed, without antibiotics or hormones.

Key Techniques in Organic Farming

- **Crop Rotation:** Changing the type of crops planted in the same field to improve soil nutrients and reduce pests.
- **Green Manure:** Growing plants that are later plowed into the soil to add nutrients.
- **Biological Pest Control:** Using natural predators like ladybugs to control harmful insects instead of chemicals.
- **Composting:** Recycling plant and food waste to create natural fertilizer.
- **Cover Crops:** Plants that protect soil from erosion and keep it fertile.

Benefits of Organic Farming

1. **Healthier Food:** Fewer chemical residues on fruits and vegetables.
2. **Better for the Environment:** Less water pollution, more biodiversity.
3. **Protects Soil:** Organic methods improve soil structure and fertility.
4. **Animal Welfare:** Animals live in more natural and humane conditions.
5. **Sustainable:** Supports long-term farming without harming nature.

Vocabulary Focus

- **Compost:** Decomposed organic matter used as fertilizer.
- **Pesticide:** Chemicals used to kill pests (not used in organic farming).
- **Biodiversity:** Variety of plants and animals in an environment.
- **Sustainable:** Methods that can be used for a long time without harm.
- **Manure:** Animal waste used to fertilize soil.

Labeling and Certification

- Organic farms must follow strict rules.
- Look for labels like *USDA Organic*, *EU Organic*, or *Soil Association*.
- Certification means the farm is checked regularly to meet organic standards.

Reading Task

Read a short text about an organic farm and answer questions:

- What techniques does the farmer use?
- How does the farmer protect the soil?
- Why does the farmer avoid pesticides?

Speaking Practice

Discuss with a partner:

- What do you think are the benefits of organic farming?
- Would you like to visit an organic farm? Why or why not?
- How does organic farming affect food prices?

Writing Task

Write a short paragraph about why organic farming is important. Use these words: natural, soil, animals, environment, healthy

Real-Life Example: Green Valley Organic Farm

Green Valley Organic Farm uses crop rotation and natural pest control. They grow vegetables without chemicals and raise cows that eat organic feed. Their products are sold with an organic label that customers trust.

Mini Quiz

1. What is crop rotation?
2. Name one way organic farmers control pests without chemicals.
3. Why is compost important in organic farming?
4. What does organic certification show?
5. How do organic farms treat animals differently?

3.4 PACKAGING AND LABELING OF ORGANIC PRODUCTS

Packaging and labeling are important parts of organic products. Packaging protects the food, keeps it fresh, and provides important information. Labels tell consumers if the product is truly organic and what it contains. This chapter helps you understand packaging types, common labels, and how to read them.

Why Packaging Matters

- Protects food from damage, dirt, and germs
- Keeps food fresh longer by controlling moisture and air
- Easy to carry and store
- Helps reduce food waste by giving information on expiration dates

Types of Packaging for Organic Products

- **Biodegradable packaging:** Made from natural materials that break down easily (e.g., paper, cardboard, cornstarch)
- **Recyclable packaging:** Can be recycled after use (e.g., glass bottles, some plastics)
- **Minimal packaging:** Uses less material to reduce waste (e.g., loose fruits, simple wraps)
- **Reusable packaging:** Containers or bags that can be used multiple times (e.g., cloth bags)

Labeling Organic Products

Labels provide key information:

- Whether the product is organic
- Ingredients list
- Certification logos
- Expiration or best-before date
- Producer or company name and contact

Common Organic Labels and Their Meaning

- **USDA Organic (USA):** Shows the product meets strict organic standards in the United States
- **EU Organic Logo:** Indicates compliance with European Union organic rules
- **Soil Association (UK):** Certifies products grown with high organic standards in the UK
- **Ecocert:** International certification for organic products
- **Non-GMO Project Verified:** Confirms no genetically modified ingredients are used

Reading Labels Correctly

Look for:

- The organic certification logo
- A list of ingredients with at least 95% organic content
- Information about the producer or farm
- Instructions for storage and use

Vocabulary Focus

- **Biodegradable:** Can break down naturally without harming the environment
- **Recyclable:** Can be processed and made into new products
- **Certification:** Official approval that a product meets certain standards
- **Ingredient:** A food or substance used to make a product
- **Expiration date:** The last day the product is safe to eat or use

Reading Task
Read the label on an organic apple juice bottle and answer:

- What percentage of ingredients are organic?
- What certification logo is on the bottle?
- How should you store the juice?
- What is the expiration date?

Speaking Practice
Discuss with a partner:

- Have you seen organic labels on food in your country?
- How do you decide if a product is really organic?
- Do you think packaging affects your decision to buy? Why?

Writing Task
Write 5–7 sentences describing the packaging of your favorite organic product. Use these words: label, ingredients, organic, package, expiration.

Real-Life Example: Organic Honey Packaging
Sara buys organic honey packaged in a glass jar with a simple paper label. The label shows the USDA Organic logo and lists only one ingredient: organic honey. The jar has a best-before date and contact information for the beekeeper.