

Food Preservation for Long Term Storage - 101

We will delve into the essential basic aspects of food preservation for long-term storage.

Our journey begins by exploring the primary motivations behind preserving food, touching upon seasonal availability, cost savings, emergency preparedness, and the crucial role in minimizing food waste.

We will then navigate through the critical factors that impact and considerations to take during the preservation process, including contaminants, bacteria, temperature, and packaging, to ensure the safety and longevity of stored items.

Next, we will uncover an array of methods for preserving food, ranging from traditional techniques like drying and pickling to modern approaches such as vacuum sealing and freezing.

Finally, we will anchor our discussion in everyday examples, shedding light on familiar practices like freezing, canning, and drying that seamlessly integrate into daily life.

Together, this presentation aims to empower individuals with a foundational understanding of food preservation, promoting both sustainability and preparedness in the realm of long-term food storage.

Main Reasons to Preserve Food:

1. **Seasonal Availability:** Preserving allows you to enjoy fruits, vegetables, and other perishables even when they are out of season.
2. **Emergency Preparedness:** Having a stock of preserved food provides a backup in case of emergencies, natural disasters, or unforeseen events.
3. **Cost Savings:** Buying in bulk during peak seasons and preserving can be more cost-effective than buying fresh out-of-season produce.
4. **Reducing Food Waste:** Preservation helps prevent food from spoiling and going to waste, contributing to sustainability.

Factors to Consider when Preserving Food:

1. **Contaminants:** Ensuring that all equipment and surfaces are properly sanitized to avoid contamination during the preservation process.
 - o **Bacteria:** Using proper canning techniques, acidity levels, and pasteurization to eliminate harmful bacteria.
 - o **Chemical:** Ensure all chemical residue has been washed out of container and off of utensils.
 - o **Rust:** When utilizing metal containers or utensils, ensure that there are no marks on the surface in contact with the food that could lead to oxidation/rust, as consuming food in contact with such marks may result in food poisoning.
2. **Sunlight and Heat:** Storing preserved items in cool, dark places to prevent heat and light from degrading the quality of the food. Blocking out sunlight from the contents of the container

can be enhanced by using dark coloured or non-transparent containers, think of the coloured bottles olive oil is sold in.

3. **Oxygen Exposure:** Using airtight containers to minimize oxygen exposure, which can lead to spoilage.
4. **Temperature:** Maintaining the right temperature during preservation is crucial. For instance, proper refrigeration or freezing temperatures are essential to slow down bacterial growth.
5. **pH Levels:** Some preservation methods, like pickling, rely on adjusting the acidity of the food to create an environment that inhibits the growth of harmful microorganisms.
6. **Moisture Content:** Controlling moisture levels is vital. Too much moisture can lead to the growth of mould and spoilage, while too little moisture may result in undesirable changes in texture.
7. **Air Circulation:** Ensuring proper air circulation, especially during drying or dehydrating processes, helps prevent pockets of moisture and promotes even drying.
8. **Type of Container:** The material and design of containers play a role. For example, using food-grade plastic or glass jars for canning and avoiding containers that may react with acidic foods.
9. **Altitude:** For certain preservation methods, such as pressure canning, altitude can affect processing times. Adjustments may be necessary at higher elevations.
10. **Quality of Ingredients:** Starting with fresh, high-quality ingredients ensures better results in terms of flavour, texture, and nutritional value after preservation.

Primary Considerations:

When planning food preparation for long-term storage, you need to consider the following:

1. Understanding Shelf Life:
 - The shelf life of a product is influenced by factors such as packaging, storage conditions, and the type of preservation method used.
2. Selecting Suitable Containers:
 - Choosing appropriate containers for storage is critical. Considering materials like glass, plastic, or metal all have different uses and their impact on the preservation process will differ.
3. Labelling and Dating:
 - It is important to label each preserved item with the date of preparation and any relevant information. This helps in tracking the freshness of the stored food.
4. Quality of Ingredients:
 - Starting with high-quality, fresh ingredients will ensure the best results in terms of taste and nutritional value after preservation.
5. Hygiene and Sanitation:
 - Maintaining cleanliness and hygiene during the food preparation and preservation process will prevent contamination in most instances.
6. Adapting Recipes for Preservation:
 - Certain recipes can be adapted to suit preservation methods, ensuring that flavours and textures are maintained over time.
7. Optimal Storage Conditions:

- There are advantageous storage conditions for different preserved foods, such as cool and dark spaces for canned goods or freezing temperatures for certain items.
8. Rotating Stock:
- Rotating stock to use older preserved items first, ensures that nothing goes to waste and maintaining a fresh supply.
9. Regional Considerations:
- Regional or climate-related factors might influence the choice of preservation methods. For example, certain methods may be more suitable in humid climates compared to dry climates.
10. Cost-Effective Preservation:
- The cost-effectiveness of the chose preservation methods must be considered. Factors like energy consumption, equipment costs, and the availability of ingredients are key when looking at the different methods.
11. Sustainability:
- Sustainable food preservation practices have been practiced for generations. Glass jars, as an example, can be reused indefinitely as long as there is not damage on the glass and the lids are replaced when damaged.
12. Legal and Safety Considerations:
- Bear in mind that there may be legal and safety regulations related to food preservation in your region, especially when considering preserving and selling food products to the public.

Ways to Preserve Food:

	Difficulty	Cost Level
Freezing: Utilizing home freezers to store fruits, vegetables, and prepared meals for an extended period.	1	4 freezer and electricity (ongoing)
Vacuum Sealing: Vacuum sealing removes air from the packaging, inhibiting the growth of aerobic bacteria. It's important to use appropriate bags and ensure a proper seal.	1	3 vacuum sealer
Drying: Dehydrating fruits, vegetables, or herbs to remove moisture and prevent spoilage.	2	3 dehydrator
Canning with Sugar: Preserving fruits in sugar (as in making jams) not only enhances flavour but also acts as a preservative. The ratio of sugar to fruit and proper sealing are critical considerations.	3	4 canner
Curing: Using methods like salt curing for meats or fish to draw out moisture and inhibit bacterial growth.	3	2 containers
Pickling: Preserving vegetables or fruits in a solution of vinegar, salt, and spices to create pickles.	4	2 jars

Fermentation: When fermenting foods, consider factors like the ambient temperature, as different temperatures may yield different flavours and textures. Additionally, the type of fermentation vessel used can impact the process.	5	2 jars
Smoking: In smoking meats or fish, the type of wood used for smoking imparts distinct flavours. Controlling the smoking temperature and duration is crucial for both flavour and safety.	3	3 smoker
Root Cellaring: Storing root vegetables in a cool, dark, and humid environment, such as a root cellar, helps to preserve freshness. Monitoring temperature and humidity levels is key.	1	10 root cellar
Salt-Rising Bread: When preserving bread through fermentation with a salt-rising method, controlling the temperature and ensuring a sterile environment are essential for the fermentation process.	10	1 Baking equipment
Cheese Aging: Aging cheese involves maintaining specific temperature and humidity conditions. The type of cheese, the aging environment, and the duration all influence the final product.	10	2 Cheese making equipment

Examples of Daily Preservation:

	Primary Factors to Consider
Home Freezer: Freezing fruits, vegetables, meats, and prepared meals to extend their shelf life.	Labelling, temperature
Jarred Jams: Making and canning jams or preserves, often using a water bath or pressure canner.	Oxygen, bacteria
Dried Fruit: Dehydrating fruits like apples, berries, or mangoes for a nutritious and shelf-stable snack.	Labelling, moisture, bacteria
Canned Vegetables: Using the canning process to preserve vegetables like tomatoes, green beans, or pickles.	Oxygen, chemical, bacteria
Canned Soups or Stews: Prepare and can batches of soups or stews for quick and easy meals. Ensure proper canning techniques and jar seals for safe long-term storage.	Oxygen, chemical, bacteria
Fermented Foods in the Refrigerator: Items like kimchi or sauerkraut can be stored in the refrigerator to slow down the fermentation process, maintaining their quality for an extended period.	Labelling, bacteria
Frozen Herbs in Ice Cubes: Preserve fresh herbs by chopping them and freezing them in ice cube trays with water or oil. This allows for convenient use in cooking while extending their shelf life.	Labelling, temperature
Vacuum-Sealed Meats: Vacuum-sealing meats before freezing removes air, preventing freezer burn and preserving the quality of the meat for a longer duration.	Labelling, temperature

Dehydrated Snack Mixes: Create dehydrated fruit and nut mixes for a convenient, shelf-stable snack. Properly sealed in airtight containers, they can last for months.	Labelling, moisture
Preserved Olive Oil Infusions: Infusing olive oil with herbs or garlic adds flavour. Store these infusions in dark, glass bottles to protect against light exposure, preserving both taste and quality.	Sunlight, oxygen
Freezer Smoothie Packs: Pre-cut and portion fruits for smoothies into individual servings, then freeze. This method allows for quick and effortless smoothie preparation.	Labelling, temperature
Jerky for Snacking: Make jerky from meats, such as beef or turkey, and store in airtight containers for a protein-rich, non-perishable snack.	Labelling, moisture, bacteria

These examples showcase the practical applications of food preservation methods in everyday life. They illustrate how individuals can incorporate various preservation techniques to make the most of seasonal produce, and have a reliable supply of food on hand for different needs.

Always bear in mind that you should plan to preserve foods which you already eat and can prepare enjoyable meals with. It is not a good idea to plan for a worst-case scenario and then only have stored foods which you never liked or can't prepare a hearty meal with.