

FOOD PRESERVATION TECHNIQUES TO TACKLE ANY CRISIS EVEN IN THE CITY



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ANY CRISIS, EVEN IN THE CITY**

LMBL TEST institute

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Introduction



In an urban environment, where access to fresh food can be limited and the opportunity to grow your own produce is scarce, learning effective food preservation techniques becomes crucial. Preparing for potential crises involves not only stockpiling food but also ensuring that it lasts for an extended period. In a city, where space is tight and fresh produce might not always be available, knowing how to preserve what you have becomes essential for long-term self-sufficiency.

By mastering preservation methods, you can create a stockpile of essential, nutrient-rich foods that will stay good for months or even years. This is especially important for urban preppers, who must plan carefully due to limited space and resources. Whether it's through drying, canning, or fermentation, these techniques allow you to build a reliable supply of food to last through emergencies, ensuring that your family stays nourished even when access to fresh food is limited.

In this guide, we will explore the most practical and effective food preservation methods suited for urban dwellers, helping you store essential supplies without the need for electricity or large amounts of space. With the right preparation, you can create a secure, long-lasting food supply that will keep you ready for any crisis.

Methods of Food Preservation



Food preservation methods can be crucial in emergency situations. Here are some of the best methods for creating long-lasting supplies, particularly practical for those living in urban settings:

1. Dehydration

How it works: Dehydration removes water from food, slowing the growth of bacteria and mold. You can use a dehydrator, an oven, or even sunlight.

Ideal for: Fruits, vegetables, jerky, herbs.

Shelf life: Up to 1 year, if stored in airtight containers.

2. Vacuum Sealing

How it works: Removing air from packaging reduces oxidation and bacterial growth.

Ideal for: Dry foods, grains, nuts, legumes, and dehydrated foods.

Shelf life: Can extend food shelf life up to 2-3 years if stored under optimal conditions.

3. Canning

How it works: Food is sealed in vacuum-packed jars after being cooked and sterilized.

Ideal for: Fruits, vegetables, meat, soups, and sauces.

Shelf life: 1-5 years, depending on the type of food.

4. Preserving in Oil or Vinegar

How it works: Food is preserved in oil or vinegar, creating a barrier against bacteria.

Ideal for: Vegetables, fish, cheese.

Shelf life: 6 months to 1 year.

5. Fermentation

How it works: Fermentation uses beneficial bacteria to preserve food, turning it into an acidic environment where pathogens can't survive.

Ideal for: Cabbage (sauerkraut), cucumbers (pickles), kimchi.

Shelf life: Up to 1 year, if properly stored.

6. Freeze-Drying

How it works: Food is frozen, and then the ice is removed through a sublimation process.

Ideal for: Fruits, vegetables, ready-to-eat meals.

Shelf life: 10-15 years if stored properly.

7. Drying

Drying is one of the oldest and most reliable methods of food preservation. By removing moisture from foods, you slow down or stop the growth of bacteria, molds, and yeasts, allowing food to be stored for long periods. There are three main methods for drying: using a dehydrator, an oven, or the sun.

Dehydrator



Advantages:

The most efficient and controlled method.

Ensures even distribution of heat and air.

Makes it easy to maintain constant temperature and time, achieving precise results.

Ideal for drying large amounts of food.

Disadvantages:

Requires electricity, which can be a problem in emergencies.

High-quality dehydrators can be expensive.

How to use it:

Set the dehydrator to the correct temperature (usually between 120°F - 160°F).

Arrange the food evenly on the trays, without overlapping.

Let it dry for 6-24 hours, depending on the type of food.

Best for:

Fruits: Apples, bananas, grapes, apricots.

Vegetables: Tomatoes, bell peppers, carrots.

Meat: Beef or chicken jerky.

Herbs: Rosemary, basil, thyme.

Oven



Advantages:

Accessible to everyone, as most people have an oven.

Faster than sun drying.

Doesn't require specialized equipment.

Disadvantages:

Hard to maintain low, consistent temperatures.

Consumes a lot of energy when used for long periods.

There's a risk of "cooking" the food instead of drying it.

How to use it:

Set the oven to the lowest temperature possible, ideally around 120°F.

Leave the oven door slightly open to allow airflow.

Check the food every 1-2 hours and flip the slices to dry them evenly.

Best for:

Fruits: Strawberries, apples, pears, mangoes.

Vegetables: Zucchini, mushrooms, onions.

Meat: Jerky.

Herbs: Sage, mint.

Sun Drying



Advantages:

Completely natural and free.

Doesn't require specialized equipment or electricity.

Ideal for emergencies or for those looking to reduce energy consumption.

Disadvantages:

Time-consuming and weather-dependent.

Risk of contamination from dust, insects, or animals.

Hard to ensure even drying.

How to use it:

Pre-treat the food: Thoroughly wash fruits, vegetables, and meat. For fruits, blanching them for a few minutes or soaking them in a lemon water solution can help retain color.

Slicing: Cut the food into thin, uniform slices for faster and more even drying.

Placement: Lay the food on mesh racks or trays so air can circulate freely above and below. Avoid direct metal surfaces, as they can overheat and cook the food.

Covering: Use a light cloth or netting to protect the food from insects and debris, but ensure air can still flow through.

Drying time: Sun drying can take 2-7 days depending on the weather conditions and the thickness of the slices.

Regular checking: Regularly flip the slices to ensure even drying.

Best foods for sun drying:

Fruits: Figs, apricots, peaches, grapes.

Vegetables: Peppers, tomatoes.

Meat: Jerky (ensure you have a well-ventilated area to prevent spoilage).

Herbs: Parsley, dill, cilantro.

Storing Dried Foods:

To keep dried foods for as long as possible, store them in airtight containers, preferably glass or plastic with a tight seal. Using silica gel packets can help keep moisture levels low inside the containers. Store dried foods in a cool, dry, and dark place.

Vacuum Sealing Preservation



How it works: Removing air from packaging reduces oxidation and slows the growth of bacteria, mold, and other microorganisms that cause food to spoil. Vacuum sealing extends the shelf life of dry and semi-dry foods by creating an environment where oxygen-sensitive bacteria cannot thrive.

Ideal for: Dry foods like grains, cereals, nuts, legumes, and dehydrated foods. You can also vacuum-seal foods that have been dried, such as jerky or dried fruits.

Advantages:

Extended shelf life: Vacuum sealing significantly extends the shelf life of food by reducing its exposure to air and moisture. Dry goods such as grains and cereals can last up to 2-3 years when stored properly in vacuum-sealed bags or containers.

Space-saving: Vacuum-sealing compresses the contents of the bag or container, making it easier to store more food in less space.

Maintaining flavor and freshness: Vacuum-sealing protects the natural flavors, nutrients, and textures of food by preventing it from being exposed to air, which can cause staleness or spoilage.

Disadvantages:

Requires equipment: Vacuum sealing requires a vacuum sealer machine and special bags or containers designed for vacuum sealing. While it is an excellent long-term solution, it involves an initial investment in the sealing equipment.

Limited use for fresh foods: Vacuum-sealing is not ideal for fresh produce or perishable items without additional preservation methods like freezing or refrigeration. However, it can work well when combined with dehydration or other preservation techniques.

Best practices:

Choose the right bags or containers: Vacuum-sealing bags should be made of strong, thick plastic that is designed to withstand the vacuum-sealing process. Opt for BPA-free bags or reusable vacuum-sealing containers for sustainability.

Pre-freeze moisture-rich foods: If you're vacuum-sealing food that contains moisture (like meats or prepared meals), it's a good idea to pre-freeze them for a few hours before sealing. This helps prevent moisture from being drawn into the vacuum machine, which can reduce the seal's effectiveness.

Store in a cool, dry place: Even vacuum-sealed items should be stored in a cool, dark, and dry environment. Ideal storage locations include cupboards, pantries, or basements where temperatures remain stable.

Inspect seals regularly: Ensure that vacuum-sealed bags maintain their seal over time. If a bag becomes unsealed due to a small puncture or damage, reseal it promptly to avoid spoilage.

Vacuum-sealing liquids: If vacuum-sealing liquids such as soups or sauces, freeze them first in a container and then vacuum-seal the frozen blocks. This prevents liquid from being sucked into the machine during sealing.

Shelf Life: Vacuum-sealed dry foods, when stored properly, can last up to 2-3 years. The longevity depends on the food type and how well the items are stored post-sealing.

Additional Tips

Use oxygen absorbers: In addition to vacuum sealing, you can place oxygen absorber packets in the bags to further extend the shelf life of the food.

Regularly check the seals: Ensure that the bag seals remain intact. If you notice bags that are swollen or have air inside, reseal the product.

Canning (Preservation)



How it works: Canning is a preservation method that uses heat to sterilize food and seal it in airtight jars or cans. The sterilization process eliminates bacteria, mold, and yeast that can cause food spoilage, while the airtight seal prevents recontamination. There are two main canning methods: water bath canning (ideal for acidic foods like fruits and tomatoes) and pressure canning (necessary for low-acid foods like meats, vegetables, and soups).

Ideal for: Fruits, vegetables, meat, soups, sauces, and legumes.

Tools needed:

Glass jars with airtight lids (e.g., Mason jars).

Pressure canner or water bath canner.

Jar tongs for handling hot jars.

Funnel to fill jars without spilling on the rim.

Rack for sterilizing jars in the pot.

Canning methods:

1. Water Bath Canning

This method is suitable for acidic foods (pH below 4.6), such as jams, tomato sauces, pickles, and fruits.

Procedure:

Prepare the jars: Wash glass jars and lids with hot soapy water, then sterilize them by placing them in a pot of boiling water for 10 minutes. Keep the jars in hot water until you're ready to fill them.

Prepare the food: Follow the recipe to prepare the food. Foods can be precooked or placed raw in jars but must be covered with hot liquid (broth, water, or syrup).

Filling: Fill jars, leaving about 1/2 inch of headspace between the food and the rim.

Remove air bubbles: Run a plastic utensil along the inner sides of the jar to remove any trapped air bubbles.

Sealing: Wipe the rim of the jar with a clean cloth, apply the lid, and screw on the band until fingertip tight.

Processing: Submerge jars in a pot of boiling water, ensuring the water covers the jars by at least 1 inch. Boil for the recommended time (see below).

Cooling and sealing: Use tongs to remove jars from the water and let them cool. During cooling, the lid should form an airtight seal (you'll hear a "pop" as it seals).

Water bath processing times:

Fruits and jams: 10-20 minutes

Tomatoes (with added acid, like lemon juice): 35-45 minutes

Sauces and stews: 20-35 minutes

Pickles: 10-15 minutes

2. Pressure Canning

Used for low-acid foods (pH above 4.6), such as vegetables, meats, legumes, and soups.

Procedure:

Prepare the jars: Sterilize jars as with the water bath method.

Prepare the food: Cook or prepare the food to be canned. Raw foods can be placed in jars, but hot liquid (broth, water, etc.) must be added.

Filling: Fill jars, leaving 1 inch of headspace to allow for proper expansion during sterilization.

Remove air bubbles: As with water bath canning.

Sealing: Clean the rim and close the jar with the lid.

Pressure sterilization: Fill the pressure canner with water, place the jars on the rack, and close the lid. Bring the canner to the correct pressure (usually 10-15 psi) and process for the required time (see below).

Cooling: Turn off the heat and allow the pressure to release naturally. Do not force the release to avoid jar breakage.

Pressure canning processing times:

Meat: 75-90 minutes (depending on the type and size of pieces)

Soups and legumes: 60-75 minutes

Vegetables: 25-30 minutes

Dried beans (pre-soaked): 75-90 minutes

Advantages:

Long shelf life: Canned foods can last from 1 to 5 years.

Safety: The sterilization process eliminates harmful bacteria like botulism that can thrive in improperly stored foods.

Versatility: Can be used to preserve a wide range of foods, including high-risk items like meats and legumes.

Disadvantages:

Requires special equipment: You need proper jars and tools.

Time-consuming preparation: Sterilization can take a while.

Storage space: Jars, while reusable, take up space.

Storage:

Canned goods should be stored in a cool, dry, dark place. Regularly check the seals on the jars and consume those with signs of deterioration or weak seals first.

Preserving Food in Oil and Vinegar



How it works:

Preserving food in oil and vinegar takes advantage of these two liquids' ability to create an environment hostile to bacteria and mold. Oil creates a protective barrier, isolating food from air, while vinegar (which is acidic) kills bacteria and prevents microbial growth. Both methods are simple to execute at home and require few tools and ingredients, but they must be followed correctly to ensure safe preservation.

Ideal for:

Vegetables: Zucchini, eggplant, bell peppers, artichokes, mushrooms.

Fish: Anchovies, tuna, mackerel.

Cheese: Semi-hard cheeses like feta or spicy provolone (only in oil).

Shelf life:

6 months to 1 year if stored in a cool, dry place. Once opened, it's best to consume within 1-2 weeks and store in the refrigerator.

Required Tools:

Sterilized glass jars with airtight lids (e.g., Mason jars)

High-quality olive oil (for oil preservation)

White wine vinegar or apple cider vinegar (for vinegar preservation)

Salt and spices (such as garlic, pepper, bay leaf, rosemary) as desired

A pot for sterilization

A rack or paper towels to dry vegetables after cooking

Preserving in Oil

This method is ideal for grilled or boiled vegetables and semi-hard cheeses, as well as cooked or raw fish, provided they are prepared properly. Olive oil not only acts as a preservative but also adds a rich flavor to the food.

Procedure:

Preparing the vegetables or fish:

Vegetables: Wash and cut the vegetables into even slices or pieces. Boil them in a solution of water and vinegar (1 part vinegar to 3 parts water) for 3-5 minutes until tender but still firm. Drain and dry thoroughly with paper towels or on a rack.

Fish: The fish should be cleaned and filleted. Anchovies or tuna, for example, are typically salted before being preserved in oil. Salt the fish for about 24 hours, then rinse and dry it well.

Cheese: Cut semi-hard cheeses like feta into cubes and let them dry for a few hours to remove excess moisture.

Filling the jars:

Add spices and flavorings: Place a few desired spices, such as a garlic clove, peppercorns, bay leaves, rosemary, or chili, at the bottom of the jar.

Insert the food: Layer the vegetables or fish evenly, leaving a few millimeters of space between layers. Do the same for the cheese.

Add the oil: Fill the jars with olive oil, completely covering the contents. Make sure no air remains trapped by using a wooden or plastic utensil to gently press along the sides of the jar to release air bubbles.

Seal: Securely seal the jars and let them sit in a cool, dry place for at least one week before consuming.

Storage:

Shelf life: If stored in a cool, dark place, the product can last 6 months to 1 year. Once opened, consume within 1-2 weeks and store in the refrigerator.

Oil level check: Periodically check that the oil always covers the food. If the oil level decreases, add more oil to prevent exposure to air.

Preserving in Vinegar

The vinegar preservation method is ideal for crisp vegetables like cucumbers, pearl onions, bell peppers, and cauliflower. Vinegar acts as a natural preservative due to its acidity, which inhibits bacterial growth.

Procedure:

Preparing the vegetables:

Wash and cut the vegetables into slices, rings, or even pieces. For vegetables like pearl onions and cucumbers, leave them whole or cut them in half.

Blanch the vegetables in a solution of water and vinegar (1 part vinegar to 3 parts water) for 2-3 minutes to retain their crunchiness. Drain and let dry on a rack or paper towels.

Preparing the vinegar solution:

Acidic solution: Mix 1 liter of white wine vinegar with 500 ml of water and 1 tablespoon of coarse salt. Add desired spices such as peppercorns, bay leaves, mustard seeds, or cloves. Bring the mixture to a boil and let it simmer for 10 minutes.

Filling the jars:

Add spices and flavorings: As with oil preservation, place the desired spices at the bottom of the jar. Fill the jars with the blanched vegetables, leaving about 1 cm of space at the top.

Pour the vinegar solution: Pour the hot vinegar and spice solution into the jars, completely covering the vegetables. Make sure to remove air bubbles.

Seal: Close the jars with airtight lids.

Storage:

Allow the jars to cool to room temperature, then store them in a cool, dark place. Let the jars sit for at least 2 weeks before consuming to allow the flavor to develop.

Shelf life: Store for 6 months to 1 year. Once opened, refrigerate and consume within 1 month.

Advantages:

Both methods are simple and accessible.

They add flavor to the food.

They extend the shelf life of perishable items like vegetables and fish.

Disadvantages:

The food must always be completely covered in oil or vinegar to prevent contamination.

Oil-preserved foods require periodic checks to ensure the oil level is maintained.

Fermentation



How it works: Fermentation is a natural process that uses beneficial bacteria (like lactobacillus) to convert the sugars and carbohydrates in food into lactic acid. This process creates an acidic environment in which harmful bacteria cannot thrive, preserving the food. It's one of the oldest and most effective methods of preservation, used for thousands of years worldwide.

Ideal for:

Vegetables: Cabbage (sauerkraut), cucumbers (pickles), carrots, beets, radishes, green beans.

Fruits: Lemons, apples, pears (though less common).

Specialties: Kimchi, fermented hot sauce.

Shelf life: Up to 1 year if stored properly in a cool, dark place. Once opened, it's best to consume within 1-2 months and keep refrigerated.

Necessary Tools:

Glass jars with airtight lids (e.g., Mason jars)

Non-iodized sea salt

Filtered water (without chlorine, which can interfere with fermentation)

Optional spices and flavors (chili peppers, garlic, mustard seeds, bay leaves)

A weight to keep the food submerged in liquid (can be a fermentation weight, a glass, or even a sterilized stone)

Step-by-Step Process:**Prepare the ingredients:**

Wash the vegetables thoroughly. For harder vegetables like carrots, radishes, and cabbage, slice them into thin pieces. Softer vegetables like cucumbers or zucchini can be left whole or cut in half.

For some recipes (like kimchi), vegetables are salted directly and left to sit for several hours to draw out excess water.

Prepare the brine:

Mix filtered water with non-iodized sea salt, generally in the proportion of 1 tablespoon of salt per every 2 cups of water. Ensure the salt is fully dissolved in the water.

The brine provides flavor but also creates a salty environment that inhibits harmful bacteria while promoting good ones.

Pack the vegetables into jars:

Pack tightly: Place the prepared vegetables into the jars, pressing them down to remove air bubbles. Fill the jar about 75-80% full.

Add spices: If desired, add garlic, chili peppers, mustard seeds, or other spices between the layers of vegetables to enhance flavor.

Add the brine:

Pour the brine over the vegetables, ensuring they are completely submerged. It is essential that no part of the vegetables is exposed to air, as this can cause mold to form.

Leave about 1 inch of space between the surface of the liquid and the lid to allow for gas formation during the fermentation process.

Use a weight:

Place a weight on top of the vegetables to keep them submerged in the liquid. You can use a small fermentation weight or insert a glass or sterilized stone inside the jar.

Seal and ferment:

Close the jar with an airtight lid. You can use a regular lid, but for better results, a fermenting cap is recommended, allowing the gases produced by fermentation to escape without letting air in.

Fermentation period:

Room temperature: Leave the jars at room temperature (around 64-72°F) to begin the fermentation process. The time required varies depending on the type of vegetable and temperature, but generally takes 3-7 days.

Check daily and taste the product. The longer it ferments, the more acidic and complex the flavors will become.

Once the flavor is to your liking, move the jars to a cool place, like a basement or refrigerator, to slow down the fermentation process.

Types of Food and Specific Fermentation Guidelines:

Sauerkraut (fermented cabbage): Cabbage is finely shredded and massaged with salt until it releases its natural liquid. Pack it into a jar with a weight and cover it with the brine. Ferment for 5-10 days, depending on the temperature.

Cucumbers (pickles): Whole cucumbers are submerged in a brine with garlic and dill for a traditional flavor. Ferment for 3-5 days at room temperature. Quick fermentation keeps the cucumbers crunchy.

Kimchi: Kimchi is made with napa cabbage, radishes, chili powder, garlic, and ginger. The cabbage is salted for several hours to draw out water, then mixed with spices and fermented for 7-10 days.

Advantages and Disadvantages:

Advantages:

Fermentation preserves nutrients and enriches them with probiotics, beneficial for digestive health. It doesn't require energy for storage, making it ideal in blackout or crisis situations. Fermented foods have complex flavors and can be used in a variety of recipes.

Disadvantages:

Requires careful monitoring during the first few days.
The acidic taste may not appeal to everyone.
Not all vegetables ferment well; some may lose texture or color.

Storage:

Where to store: After initial fermentation, the jars should be stored in a cool, dark place. A refrigerator or cool basement is ideal.

Shelf life: Fermented foods can last up to 1 year, but it's best to consume them within the first 6 months for optimal flavor and nutritional benefits.

Monitoring: Even after fermentation, it's a good idea to check the jars occasionally to ensure the liquid still covers the vegetables and that no mold has formed.

Fermentation turns simple vegetables into flavorful, nutrient-dense foods, perfect for long-term survival planning.

Freeze-Drying



How it works: Freeze-drying, also known as cryogenic drying, is a process where food is first frozen and then placed under vacuum. During the process, the water present in the food passes directly from a solid state (ice) to a gaseous state (vapor) through a process called sublimation. This removes almost all the moisture from the food without compromising its flavor, texture, or nutritional value. Freeze-dried food retains its taste and nutrients for many years if stored properly.

Ideal for:

Fruits: Strawberries, blueberries, bananas, apples.

Vegetables: Peas, corn, green beans, carrots.

Prepared meals: Soups, stews, pre-cooked meals.

Meat: Chicken, beef, fish.

Herbs and spices.

Shelf life: 10-15 years or more if stored correctly, in dry and dark conditions. If packaged in vacuum-sealed bags or jars with oxygen absorbers, the shelf life can exceed 20 years.

Necessary tools:

Freeze-dryer: This machine is essential for the process. Although the initial cost may be high, purchasing a freeze-dryer such as the "Harvest Right Freeze Dryer" can be a valuable investment for those who want to stockpile long-term food supplies.

Vacuum-seal bags or airtight jars: These ensure that freeze-dried foods don't absorb moisture again.

Oxygen absorbers: These small packets help remove any trace of oxygen that could spoil the food in the long term.

Mylar bags: A great alternative to jars, lightweight and durable, perfect for long-term storage.

Step-by-step freeze-drying process:

Food preparation:

Fruits: Wash and slice fruits into thin pieces. Smaller fruits like blueberries can be freeze-dried whole, but larger fruits, such as bananas or apples, should be evenly sliced for more effective freeze-drying.

Vegetables: Wash and cut the vegetables into small pieces. Blanching certain vegetables, such as carrots and green beans, for a few minutes before freeze-drying can help preserve their color and flavor.

Meat: Fully cook the meat before freeze-drying. Cut into small pieces or strips for easier processing.

Prepared meals: Ensure that meals are fully cooked and cooled before beginning the freeze-drying process.

Rapid freezing:

Place the food in the freeze-dryer at a very low temperature, usually around -40°F. Some freeze-dryers allow you to freeze the food directly in the machine, while others require pre-freezing.

It's important that the food is evenly distributed on the trays of the freeze-dryer to allow for even freezing.

Sublimation:

Once the food is completely frozen, the freeze-dryer creates a vacuum environment. At this point, the machine slowly warms the food, allowing the frozen water to pass directly from solid to vapor (sublimation).

The duration of this phase depends on the quantity and type of food. It can take between 24 and 48 hours or more.

Final check:

After sublimation, remove the food from the freeze-dryer. The food should be completely dry and crisp.

Check that there are no traces of moisture, as even a small amount can compromise long-term storage. You can test by breaking a piece of food; if it's completely dry, it will easily snap.

Storing freeze-dried foods:

Packaging:

Freeze-dried foods must be immediately packaged in vacuum-sealed bags or airtight jars with oxygen absorbers. Air is the enemy of long-term storage as it contains moisture and oxygen, which can spoil the food.

Mylar bags or glass jars with vacuum seals are ideal for ensuring that the foods don't reabsorb moisture.

Oxygen absorbers:

Place an oxygen absorber in each package to prevent oxidation. Oxygen absorbers are essential to extending the shelf life of freeze-dried food to 10-20 years.

Labeling:

Label each package with the date of freeze-drying and the contents. This will help you track your inventory and know exactly what you freeze-dried and when.

Storage:

Store the packages in a cool, dark, and dry place. Freeze-dried food is highly sensitive to moisture, so keeping it in a dry environment is key to preventing it from reabsorbing water and spoiling.

Best foods for freeze-drying:**Fruits:**

Strawberries, blueberries, bananas, apples, and mangoes are among the most commonly freeze-dried fruits. They retain their sweet flavor and can be used in snacks, cereals, or desserts.

Freeze-drying time: 24-36 hours.

Vegetables:

Freeze-dried peas, corn, green beans, and carrots retain their nutritional value and are ideal for soups and stews.

Freeze-drying time: 24-48 hours.

Meat and prepared meals:

Freeze-dried meats, such as chicken or beef, can be rehydrated and used in meals. Complete meals like stews or soups can be freeze-dried and stored for years.

Freeze-drying time: 36-48 hours for meat; 48-72 hours for full meals.

Pros and cons:**Pros:**

Extremely long shelf life: Freeze-dried foods can last between 10 and 20 years when stored properly.

Retains nutritional value: The freeze-drying process preserves nearly all the vitamins and minerals in the original foods.

Lightweight: Freeze-dried food is incredibly lightweight, making it easy to store and transport.

Easy rehydration: Just add water to bring the food back to nearly its original state, making it ready to eat in just a few minutes.

Cons:

Initial cost: Freeze-dryers can be expensive, ranging from a few hundred to thousands of dollars.

Time-consuming: Freeze-drying is a process that takes many hours, depending on the type and quantity of food.

Storage space: Although freeze-dried food is lightweight, it takes up the same volume as the original food, requiring adequate storage space.

Conclusion:

Freeze-drying is a long-term food preservation method ideal for those who want to stockpile food that lasts for decades. While it requires an initial investment in equipment, the benefits in terms of shelf life, nutritional value, and versatility far outweigh the drawbacks.

Quick and Easy Recipe Ideas



Now that you've learned the different methods of food preservation, it's time to move on to the next phase: how to make the best use of these preserved foods in your daily preparations, even during emergencies. Having well-preserved supplies is essential for survival, but knowing how to turn them into nutritious and tasty meals is just as important.

In this chapter, we'll provide you with a series of simple and practical recipes that use foods preserved through the methods we've discussed. These recipes will help you make the most of your supplies, ensuring that you and your family can stay nourished and satisfied, even during periods of crisis.

From hearty soups made with dried vegetables to dishes prepared with vacuum-sealed legumes, and snacks using freeze-dried fruits, you'll discover how preserved foods can become an integral part of your daily diet. Each recipe is designed to be easy to prepare, even with limited resources, and to optimize the use of the ingredients you have available.

Whether you're facing an emergency situation or simply organizing your supplies for an uncertain future, these recipes will give you the inspiration and skills needed to turn your preserved foods into gourmet dishes.

1. Dehydration

Dried Vegetable Soup

A simple soup made using dried vegetables like carrots, celery, tomatoes, and onions.

Ingredients:

1.75 oz dried carrots
1 oz dried celery
1.75 oz dried tomatoes
1 oz dried onions
4 cups vegetable broth
Salt and pepper to taste
Fresh herbs (thyme, oregano) to taste

Instructions:

Bring the vegetable broth to a boil.
Add the dried vegetables to the broth and let them simmer over low heat for about 15-20 minutes, until the vegetables have rehydrated.
Adjust the seasoning with salt, pepper, and fresh herbs.
Serve hot, accompanied by croutons or bread.

Mixed Dried Fruit Snack

A mix of dried apples, bananas, apricots, and raisins, perfect as a snack or for breakfast.

Ingredients:

3.5 oz dried apples
1.75 oz dried bananas
1.75 oz dried apricots
1 oz raisins
0.75 oz nuts or almonds (optional)

Instructions:

Mix all the dried fruits and nuts in a bowl.
Store the mix in airtight containers to use as a snack or for breakfast.
You can enrich it with yogurt or add it to cereal.

Dried Apples

Ingredients:

5 ripe apples
Juice of 1 lemon
Water

Instructions:

Preparing the apples:
Wash the apples thoroughly.

Core and slice the apples thinly, about 1/8 inch thick.
Prepare a solution of water and lemon juice (4:1 ratio) to prevent the apples from oxidizing.
Soak the apple slices in the solution for 5 minutes.
Drain and pat the slices dry with paper towels.

Drying:

With a dehydrator:

Arrange the slices on trays without overlapping.
Set the dehydrator to 140°F.
Dry for 6-8 hours, checking periodically.

In the oven:

Preheat the oven to the lowest setting (about 120°F to 140°F).
Arrange the slices on a baking sheet lined with parchment paper.
Leave the oven door slightly open to allow airflow.
Dry for 8-10 hours, turning the slices halfway through.

In the sun:

Place the slices on racks or screens in a sunny, well-ventilated spot.
Cover with a mesh to protect them from insects.
Dry for 2-3 days, turning the slices daily.

Storage:

Let the dried apples cool.
Store in airtight containers, preferably glass jars.
Keep them in a cool, dry place.

2. Vacuum Sealing

Breakfast Cereal Mix

Grains like oats, buckwheat, and nuts, vacuum-sealed and cooked into porridge in case of emergency.

Ingredients:

7 oz oats
3.5 oz buckwheat
1.75 oz nuts
1 oz chia seeds
Honey or maple syrup for serving

Instructions:

Store the oats, buckwheat, and nuts in vacuum-sealed bags.
When you're ready to prepare the porridge, cook 1.75 oz of the mix in 10 fl oz of water or milk over low heat, stirring often, for 10-15 minutes.
Add chia seeds and serve with honey or maple syrup.

Vacuum-Sealed Legumes for Quick Soups

Dry legumes prepared and used directly in soups or stews.

Ingredients:

3.5 oz dried beans
3.5 oz dried lentils
1.75 oz dried chickpeas
4 cups vegetable broth
1 garlic clove
Olive oil, salt, and pepper to taste

Instructions:

Store the dried legumes in vacuum-sealed bags.

When you're ready to prepare the soup, rehydrate the legumes by soaking them in water for 8 hours. In a pot, sauté the garlic in olive oil, add the legumes and the broth. Cook on low heat for 1 hour or until the legumes are tender.

Season with salt and pepper before serving.

3. Canning

Preserved Tomato Sauce

A basic canned tomato sauce that can be used in various dishes such as pasta, soups, or stews.

Ingredients:

11 lbs ripe tomatoes (San Marzano or Roma)
2 medium onions
4 garlic cloves
Fresh basil leaves
Salt to taste
3.5 fl oz lemon juice (necessary for acidification)

Instructions:

Preparing the sauce:

Wash the tomatoes, remove the stems, and cut them into pieces.

Finely chop the onions and garlic.

In a large pot, sauté the onions and garlic in a drizzle of oil until golden.

Add the tomatoes and cook over medium heat for 30-40 minutes, stirring occasionally.

Pass the sauce through a food mill or blend with an immersion blender for a smooth consistency.

Return the sauce to the heat, add salt and basil leaves, and cook for another 15 minutes.

Preparing the jars:

Sterilize the glass jars and lids by boiling them in water for 10 minutes.

Keep the jars warm until ready to use.

Filling and sealing:

Add 2 tablespoons of lemon juice to each quart jar (1 tablespoon for pint jars) to ensure proper acidity.

Fill the jars with the hot sauce, leaving ½ inch of headspace.

Remove any air bubbles by running a spatula along the inside edges of the jars.

Wipe the rims of the jars with a clean, damp cloth.

Apply the lids and screw on the bands until fingertip-tight, but not too tight.

Pasteurization process:

Place the jars in a tall pot with hot water, ensuring they are covered by at least 2 inches of water.

Bring the water to a boil and process for 40 minutes (for quart jars).

When done, carefully remove the jars and let them cool on a towel without moving or touching them for 12-24 hours.

Check and storage:

Ensure the center of the lids is concave, indicating a proper vacuum seal has formed.

Label the jars with the date.

Store in a cool, dark, and dry place.

Bean and Vegetable Soup

A nutritious soup prepared and canned in jars for a quick and protein-rich meal.

Ingredients:

7 oz cooked beans

3.5 oz diced carrots

3.5 oz diced zucchini

4 cups vegetable broth

1 bay leaf

Instructions:

Cook the beans, vegetables, and broth together, adding the bay leaf. Bring to a boil and simmer on low heat for 40 minutes.

Pour the soup into sterilized jars, seal tightly, and process in boiling water for 60 minutes.

Store in the pantry for up to 1 year.

4. Oil and Vinegar Preservation

Vegetables Preserved in Oil

Zucchini, eggplant, or peppers preserved in olive oil with aromatic herbs.

Ingredients:

1 lb zucchini or eggplant

17 fl oz extra virgin olive oil

2 garlic cloves

Aromatic herbs (thyme, rosemary)

Salt to taste

Instructions:

Slice the vegetables thinly and lightly grill them.

Place the vegetables in sterilized jars, alternating layers with garlic and herbs.

Completely cover the vegetables with olive oil and seal the jars tightly.

Store in a cool place and use within 6 months.

Pickled Cucumbers

Classic pickled cucumbers, perfect as a side or to enhance salads and sandwiches.

Ingredients:

1 lb small cucumbers

1 ¼ cups white wine vinegar

¾ cup water

2 tablespoons sugar

1 tablespoon salt

Black peppercorns, bay leaves

Instructions:

Bring the vinegar, water, sugar, and salt to a boil.

Place the cucumbers in sterilized jars along with peppercorns and bay leaves.

Pour the hot liquid over the cucumbers until they are fully covered, and seal the jars tightly.

Store in a cool place for at least 2 weeks before consuming.

Eggplant Preserved in Oil

Ingredients:

4.4 lbs fresh eggplant

1 quart white wine vinegar

1 quart water

Coarse salt to taste

4 garlic cloves

Fresh or dried chili pepper to taste

Mint leaves or dried oregano (optional)

Extra virgin olive oil as needed

Instructions:

Preparing the eggplant:

Wash and peel the eggplant.

Slice them thinly (about ¼ inch) or into strips.

Layer the eggplant slices in a colander, sprinkling each layer with coarse salt.

Cover with a weight (such as a plate with a heavy object on top) and let them sit for 4-6 hours to drain the bitter liquid.

Cooking:

Rinse the eggplant under cold running water to remove excess salt.

Dry the slices well with a clean cloth.
Bring the water and vinegar to a boil in a large pot.
Blanch the eggplant slices for 2-3 minutes.
Drain and lay them out on a clean cloth, patting them dry.

Filling the jars:

Sterilize glass jars and lids.
Layer the eggplant slices in the jars, adding garlic slices, chili pieces, and mint or oregano leaves between the layers.
Press down gently to compact the layers without crushing the eggplant.

Adding the oil:

Pour extra virgin olive oil into the jars, covering the eggplant completely.
Use a spatula or toothpick to remove any air bubbles.
Ensure the eggplant remains fully submerged in the oil.

Sealing and storing:

Seal the jars tightly.
Store in a cool, dark place.
Wait at least 1 month before consuming to allow the flavors to meld.
After opening, store in the refrigerator and make sure the eggplant remains submerged in oil.

5. Fermentation

Homemade Sauerkraut

Fermented cabbage used as a side dish or added to stews and salads.

Ingredients:

4.4 lbs green or red cabbage
1.4 oz non-iodized sea salt (about 2% of the cabbage's weight)
1 tablespoon caraway seeds (optional)

Instructions:

Preparing the cabbage:

Remove any damaged outer leaves.
Save one or two clean whole leaves to cover the top of the cabbage in the jar.
Finely slice the cabbage using a sharp knife or mandoline.

Salting and massaging:

Place the sliced cabbage in a large bowl.
Add the salt (and caraway seeds, if using).
Massage the cabbage vigorously for 10-15 minutes until it releases enough liquid to cover itself.

Packing the jar:

Transfer the cabbage and its liquid into a sterilized jar.
Press the cabbage down firmly to remove any air bubbles and ensure it is submerged in its liquid.

Use the reserved whole leaves to cover the surface.

Place a weight (such as a small glass or a fermentation weight) on top to keep the cabbage submerged.

Fermentation:

Cover the jar with a fermenting lid or a clean cloth secured with an elastic band.

Let it ferment at room temperature (64-72°F) for 1-2 weeks.

Check daily, removing any surface foam that forms.

Taste after one week to determine the desired level of fermentation.

Storage:

Once the desired flavor is achieved, seal the jar tightly.

Store in the refrigerator or in a cool place.

Consume within 6 months for the best quality.

Kimchi

A classic Korean dish of fermented cabbage, spicy and flavorful, ideal as a side or condiment.

Ingredients:

1 Napa cabbage

2 carrots

4 green onions

3 garlic cloves

2 tablespoons fish sauce

1 tablespoon chili powder

1 tablespoon salt

Instructions:

Cut the cabbage and carrots into pieces and mix with the salt. Let it sit for 1 hour.

Mix together the garlic, fish sauce, and chili powder.

Rinse the cabbage and carrots, then combine them with the spice mixture and green onions.

Pack everything into a jar, pressing down firmly.

Ferment at room temperature for 1 week, then store in the refrigerator.

6. Freeze-Drying

Freeze-Dried Fruit Smoothie

A rich smoothie made using freeze-dried strawberries, bananas, and blueberries.

Ingredients:

1.8 oz freeze-dried strawberries

1.8 oz freeze-dried bananas

1 cup milk or water

Honey to taste

Instructions:

Add the freeze-dried fruit and milk into a blender.
Blend until smooth.
Add honey to sweeten and serve immediately.

Freeze-Dried Strawberries

Note: This procedure requires a home freeze-dryer.

Ingredients:

2.2 lbs fresh, ripe strawberries

Instructions:

Preparing the strawberries:

Gently wash the strawberries under running water.

Remove the stems and slice the strawberries into approximately 1/4-inch thick slices.

Pre-freezing:

Arrange the strawberry slices in a single layer on the freeze-dryer trays.

If your freeze-dryer does not have a freezing function, pre-freeze the strawberries in your freezer for at least 2-3 hours.

Freeze-Drying:

Insert the trays into the freeze-dryer.

Start the freeze-drying cycle according to the manufacturer's instructions. This process may take between 20 and 30 hours.

Dryness Check:

Once the cycle is complete, check that the strawberries are completely dry and crisp.

Break a slice to ensure there is no remaining moisture inside.

Packaging:

Immediately pack the strawberries into vacuum-seal bags or airtight glass jars.

Add an oxygen absorber to each package to extend shelf life.

Remove the air and seal the containers.

Storage:

Label the containers with the date and contents.

Store in a cool, dry, dark place.

Freeze-dried strawberries can last up to 15 years if properly stored.

Instant Soup with Freeze-Dried Vegetables

A nutritious soup made using freeze-dried vegetables like spinach, carrots, and peas.

Ingredients:

3.5 oz freeze-dried spinach

3.5 oz freeze-dried carrots
3.5 oz freeze-dried peas
1 quart vegetable broth
Salt and pepper to taste

Instructions:

Bring the vegetable broth to a boil.

Add the freeze-dried vegetables and cook for 5-10 minutes, until the vegetables have fully rehydrated.

Adjust seasoning with salt and pepper, and serve hot.

Additional Emergency Tips



If electricity is unavailable and your refrigerator is out of service, there are other methods you can use to preserve foods that typically require cold storage. These methods allow you to create long-lasting supplies for various types of fresh products. Here are some practical tips:

1. Use of Cellars or Cool Areas in the House

Cellars or basements: If you have access to a cellar or basement, these areas tend to maintain cooler temperatures compared to other parts of the house. These spaces can be used to store vegetables such as potatoes, carrots, onions, or even certain types of cheeses and smoked or salted meats.

Shaded balconies or terraces: If you live in an apartment, you can use your balcony or terrace to store food in insulated containers, especially during the colder seasons. Keep food in the shade and out of direct sunlight.

2. Insulated Jars or Cans

Jars with cold water: If you don't have access to ice, you can place foods like milk or cheese in sealed jars and submerge them in cool water to slow bacterial growth. Change the water regularly to maintain a lower temperature.

3. Smoking and Salting

Meat can be preserved without refrigeration through smoking or salting processes. These methods remove moisture and create an environment unsuitable for bacterial growth.

Salted or dried meat (jerky): Dried or salted meat can last a long time without refrigeration as long as it's stored in a cool, dry place.

4. Terracotta Pots or "Zeer Pot"

This traditional method uses two terracotta pots, one larger than the other. The space between the two pots is filled with wet sand, and the water in the sand evaporates, cooling the inside of the smaller pot. This method is especially useful for keeping fruits and vegetables fresh without electricity.

5. Preserving in Salt or Sugar

Salt and sugar can be used to preserve foods like meat, fish, and fruit. Salt draws out moisture, while sugar acts as a natural preservative, inhibiting bacterial growth.

6. Storage in Cool and Well-Ventilated Areas

If no other options are available, store your food in the coolest and most well-ventilated area of your home. Sometimes simply choosing a shaded, well-ventilated spot can make a significant difference. With these methods, you can avoid relying on refrigeration and extend the shelf life of your food safely, even during emergencies.

How to Do Traditional Preservation: Smoking, Salting, and Sugaring for Long-Term Storage



Smoking on a Balcony or in an Apartment

Suitable foods:

Meat (e.g., beef, chicken, turkey, pork)

Fish (e.g., salmon, trout, mackerel, cod)

Cheese

Smoking methods for small spaces:

Portable smoker: There are compact, portable smokers that can be used on small balconies. These models don't produce excessive smoke and are easy to control.

Equipment: Portable smoker with wood chips (e.g., cherry or apple wood for flavoring).

Procedure:

Preparation: Cut the meat or fish into manageable pieces. You can marinate or salt them before smoking to extend their shelf life.

Preheat the smoker: Heat the smoker to around 150-250°F, depending on the food (lower temperatures for fish, higher for meat).

Smoking: Place the meat or fish in the smoker, leaving enough space between pieces for the smoke to circulate well. Smoke for 2-6 hours, turning the food halfway through.

Cooling and storage: Cool the food and store it in an airtight container or vacuum-sealed bag.

Cold smoking: This method may be more suitable for apartment dwellers since it doesn't require high temperatures.

Suitable foods: Fish (salmon), cheese, sausages.

Equipment: Compact cold smoker.

Procedure: Use aromatic wood chips at low temperatures (below 85°F). Leave the food in the smoker for 12-48 hours. It's essential to have good ventilation on the balcony or near a window.

Post-smoking drying: To ensure optimal preservation, further dry the food in a cool, well-ventilated place.

Storage duration:

Cold-smoked foods can be stored for up to 6 months in a cool, dry place or in the refrigerator if available.

Hot-smoked foods generally last 2 to 4 weeks in the fridge or in a very cool place, but they can be frozen for longer storage. If electricity is unavailable, consume quickly as they preserve well only at low temperatures.

Salt Preservation (Salting)

Suitable foods:

Meat (beef, pork, chicken)

Fish (e.g., cod, anchovies, salmon, mackerel)

Salt quantity:

3.3-4.4 lbs of coarse salt per 2.2 lbs of meat or fish.

Procedure:

Preparation of the food:

Cut the meat into pieces, preferably thin, or leave the cleaned, gutted fish whole to facilitate the salting process.

Salt preservation:

In a non-metallic container (e.g., glass or ceramic), cover the bottom with a layer of coarse salt.

Lay the food on the salt and completely cover it with more salt. You can add spices or herbs (like bay leaves, thyme, or pepper) for flavoring. Alternate layers of salt with food and seasonings. Ensure no part of the food is exposed.

Cover the container with a clean cloth and leave it in a cool, dry place.

Duration:

Fish: Leave the fish in salt for 5-7 days before consuming. This is the time needed for the salt to penetrate the tissue and remove moisture.

Meat: Depending on the cut and size, meat can take 1 to 4 weeks. For smaller cuts like bacon or fatback, 1-2 weeks is sufficient. Larger cuts like ham can take up to 1 month.

Rinsing and storage:

After the salting period, rinse the food thoroughly to remove excess salt.

Drying: Completely dry the meat or fish before storing.

Salted meat can be stored for 6 months to 1 year in a cool, dry place like a ventilated pantry or refrigerator.

Salted fish can be stored for 3-6 months under the same conditions.

Sugar Preservation**Suitable foods:**

Fruits (e.g., figs, peaches, apricots, strawberries)

Sugar quantity:

2.2 lbs of sugar per 2.2 lbs of fruit

Procedure:

Preparation:

Wash and dry the fruit. You can cut it into pieces or leave smaller fruits whole.

Sugaring process:

In a clean container, generously coat the fruit with sugar (use about 2.2 lbs of sugar for 2.2 lbs of fruit). Alternate layers of fruit with layers of sugar, ensuring that each piece is completely covered with sugar. The sugar will act as a preservative by drawing moisture out of the fruit and creating an environment hostile to bacteria.

Resting:

Let the sugared fruit rest in a closed container for 1-2 days, until the sugar has dissolved and formed a syrup.

Storage:

Store the fruit in sterilized, airtight containers.

Storage duration:

Sugar-preserved fruits can last up to 1 year in a cool, dark place. Once opened, they should be consumed within 1-2 weeks and stored in the refrigerator, if available, or in a cool place, but consumed more quickly.

Final Tips for Small Spaces

Compact smoker: Purchase a small portable smoker that can easily be stored when not in use.

Airtight containers: Use glass or food-safe ceramic containers to store smoked, salted, or sugared foods, ensuring long shelf life.

Rotate stock: Avoid overstocking, especially if space is limited. It's important to regularly consume and replace your preserved foods.

These methods can be adapted for small balconies or even well-ventilated indoor spaces, allowing anyone to effectively preserve food in urban environments.

Conclusions



In this guide, we've explored various traditional and modern methods for food preservation that can be essential for ensuring long-lasting supplies during emergencies, particularly in urban settings. From dehydration to freeze-drying, and preservation through salt, sugar, and smoking, each technique offers practical solutions that can be adapted even for those living in small spaces, such as apartments or homes with small balconies. We've discussed how each method requires specific tools and precautions, but with a little organization and practice, it's possible to efficiently manage your food resources without relying on a refrigerator or electricity.

Knowing these techniques will not only help you confidently face potential shortages or blackouts, but also allow you to rediscover ancient, sustainable methods of food preservation, reducing waste and optimizing the space you have. The key is to adapt the strategies to your environment and routine, learning to rotate supplies and use the food in the most efficient way possible.

Remember that in times of emergency, preparation is everything. Organizing in advance, testing various methods, and ensuring you always have well-preserved supplies can make the difference between facing a crisis with confidence or being caught off guard. With the right knowledge and tools, your home can become a safe and self-sufficient haven, ready to handle any challenge.

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