

Ways to Preserve Food

-An overview-

*An Introduction to Ways You Can
Safely Preserve and Store Adequate Amounts of Food*

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Introduction

Preserving food has become an important focus of many families. After reading this article, you will understand what is involved in preserving and be able to decide if it's for you. Food prices are soaring, and food quality and quantities are decreasing. You can save lots of money by buying things on sale or take advantage of bulk purchases because you can preserve the food and use it later. You will be protecting yourself and your family by having safely stored nutritious food in the event of an emergency; and you can help your neighbors. With all these pluses it's a wonder why everyone isn't preserving food.

Methods for preserving will be discussed in enough detail for you to learn about the primary ways to preserve foods, the pitfalls to look out for that can interfere with good practices, and how you can adopt a preserving program.

Why preserve food?

Because of the changing times interest in preserving food has grown as families become more and more concerned about providing healthy, delicious food for their families over the long haul. When you preserve food you are maximizing the nutritional value while changing the food's structure for long term storage. Preserving your own food guarantees higher nutrition which translates into better health. Preserving food has always been a strategy for surviving hard economic times without experiencing poor nutrition.

This article is divided into 3 parts. We'll begin by looking at the 2 main goals you should have for preserving successfully. Then, look at the most popular methods for preserving, and we'll end with basic tools to have in your home to begin a preserving program.

1. Two Goals for Preserving

You can preserve foods by drying, dehydrating, canning (hot bath), vacuum sealing, freezing and smoking. Your first goal in preserving is to pick adequate types of food. You need to consider a food's nutritional value and track how much of each food group you have so you keep an adequate supply. Pick foods based on the overall nutritional value they will provide which can be found in foods that are fresh, natural or organic, representing a good variety, and in good quantities.

Goal 1: Adequate Types of Food

Your body thrives best on certain types of foods and will get sick when deprived of the right kinds these foods. Think of the scurvy epidemic which was a simple lack of vitamin C that killed many immigrants sailing the long voyage to America. If you're going to go through the trouble of buying, growing, preserving and storing food, then pick foods adequate for providing proper nutrition. Your time and resources will be better spent if you choose foods with a premium for good health giving you the most bang for your buck. Not-with-standing some comfort foods are definitely encouraged, e.g. jelly beans, chocolate, etc.

Fresh, Organic, or All Natural – These are foods that are either recently harvested at the time of preserving, and/or are grown or processed with little or no preservatives, hormones, chemicals or dyes. It's a fact that consuming these types of foods brings you to optimum health. Keep in mind that foods that have been stored and transported in plastics, though claiming to be *organic* or *all natural* could have chemicals that leached out from the plastics due to heat. These "leached" chemicals have been responsible for some cancers.

Good Varieties – Having a good variety of foods allows your body to benefit from different enzymes, minerals and vitamins. Too much of a one type of nutrient, or not getting enough of other types of nutrients will make you sick. Poor nutrition causes your body to have a lower resistance when you get sick. Strong, general health will enable your body to fight infection or illness better. Having a good variety of foods assures that trace minerals will be consumed, and this helps you in ways you are unaware, and in ways that science does not even know yet. It has been recently discovered, for example that if you eat honey from your region you will become more immune to allergens in that region. Since we don't know what we don't know, it's best to eat a big variety of foods. It is also better for your body, appetite, digestion, and sugar levels to eat small, frequent meals and snacks and not to eat too late in the day.

Good Quantities - Try to keep plenty of food around. This will ensure enough healthy foods to choose from and help you to eat small, frequent meals. You will eat what is available – both good and bad, so be proactive in your planning, and pay attention to what's in the pantry and frig.

Food Groups - Learn about the benefits of eating food groups that complement each other. For example, fruit and dairy combined eases the stomach and helps digestion, but red meat consumed with milk is very unsettling to the stomach. Foods rich in vitamin C help your body absorb foods rich in Vitamin A like fish. Overcooking meat destroys enzymes naturally present and necessary to properly digest the meat. Learn about and use this type of information to your advantage.

Goal 2: Safely Preserve Foods

Your second goal is to make sure that that when you preserve you do it safely. To be safe you will need to consider sanitation, temperature, moisture, storage methods, and a rotation plan.

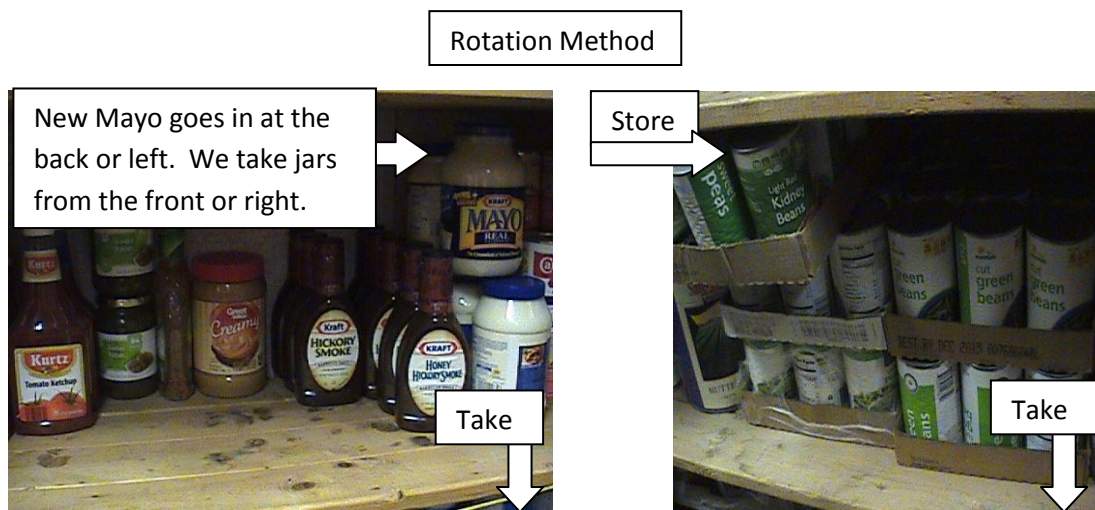
Sanitation - You would be surprised at the many ways you can contaminate your food, such as simply touching something briefly when you're preparing food. For example, if you're in the middle of preparing or preserving something and you pick up the back of a chair to move it, you could pick up the last thing your friend, spouse or child was working on outside when they came in and moved the same chair a few minutes ago, like shoveling manure, working in the compost pile, or cleaning your dog's ears out! Don't touch anything around you when you are in the middle of preserving. Wash your hands frequently.

Temperature - You will have to consider temperature in almost all you do when cooking, preserving and storing food. For example, you use boiling water during the canning process in glass jars, and you will need to achieve certain ideal temperatures for properly storing all your preserved foods. There are also taste benefits to using temperature correctly, such as heating up

oil in a pan to a very high temperature before laying anything in the pan to cook. Don't dismiss mentions of temperatures when following directions for cooking or preserving.

Moisture - Moisture causes mold; moisture prevents herbs from drying properly so they can be ground up; and moisture causes caking of powders, spices, and salt. Controlling the humidity of your storage area will be essential.

Rotation – An important part of preserving involves a plan to use the oldest items first to cycle all items through storage. Make your own method for utilizing older foods before newer foods. You can color-code items to indicate old vs. new, write labels, or use shelf space location to store items in a way that lets you know what is older. We have a simple rotation method in our pantry for “staples” e.g. catsup, mayo, peanut butter, bbq sauce, and salad dressing. We buy large quantities of these staples because I always stock up when it's buy one get one free (BOGO). I store them close to our living space because we use them all the time. Our method for rotation is to “add to the back and left – take from the front and right”.



2. Types of Preserving

Now that you understand some reasons to preserve, and priorities in preserving correctly let's consider which preserving methods you may want to use. Preserving methods include multi-step processes like soaking, skimming, rinsing, hanging to dry, freezing, canning (in mason jars), smoking, and sucking air out of bags, containers, and buckets. Your choice of which method to use is governed by the food. For example, you would usually freeze berries, but dehydrate and vacuum seal tomatoes and strips of meat (jerky). You could can (in glass jars) green beans, though you could easily freeze green beans. Of course you can try anything you want – who's to say only one way is right. I have tasted dehydrated green beans salted and spiced and they were great, but this is unusual. Below is a description of each major type of preserving method.

Seeds

If you are a gardener, you will want to know how to preserve seeds properly. Seeds need to be clean and dry to store them properly. Below is the process to soak, skim, rinse, dry and store seeds. Seeds

need a lot of TLC. We keep them in a cool, dry, dark place. I add to them, and look through them every few months to contemplate what I'll be "starting" in my seed starter trays for next season.

Seed starter trays – These little plants will be placed into the ground or large containers at the appropriate time. As they sprout, moisten the soil occasionally and especially during dry spells, and cover them during poor weather. Start seeds according the planting calendar.



1. Heirloom seeds are seeds that produce a food whose seeds can produce the same food again, perpetually.
2. Non-heirloom seeds will produce food, but after the first time the seeds from that plant will either not produce at all, or will produce an inferior plant, whose seeds will not be viable.

Soak – Soaking seeds is the first step in preparing them to preserve. Seeds found in "wet" fruits and vegetables like tomatoes, cucumbers, and squash need to be soaked to remove all organic matter. Seeds that don't need "soaking" are dry seeds such as those found on the outside of plants like in flowering parts of lettuce, broccoli, etc. Check your literature for where seeds are obtained from each plant, and when they should be gleaned if you're not sure.

1. The first thing you do is take the strongest samples from your crop. Take seeds from a mature fruit or fully grown, flowering plant.
2. Take the seeds out and put them in water (room temperature) in a bowl. Don't use chlorinated water. Cover them with a napkin and set the bowl aside on the counter for about 3 days.
3. You can stir it a few times to loosen the organic matter, but don't stir them near the time you are going to do the next step (skim, rinse and dry.)

Skim, Rinse and Dry - After a few days of soaking, do the following:

1. The bad seeds float to the top, so skim the seeds off the top along with the organic matter that rose to the top and throw this away.
2. Rinse the rest of the seeds, and then lay them out on a plate. You want them clean of any organic matter.

3. After they are completely dry (several days later) scrape them off the plate into a jar or plastic bag. Label and date your seeds.

Store – Store in a cool dry, dark place. If there are seeds you haven't used in several years, you don't necessarily need to throw them out. They may still be good, but don't count on them. Always have 2 – 3 generations of seeds, properly labeled. Use the older seeds first. If you want to discard any, pick a place on your property that may get adequate amounts of sun and rain naturally, and throw them there. You may have volunteer plants come up on a year or two.



Dehydrating - For each description below, cut the slices (fruit, vegetables, meat) in equal thickness for each batch so that each batch will dry uniformly. Lay the slices with a little space between each one to allow air to circulate well, and follow the directions for operating the dehydrator. Some inferior dehydrators will have items closest to the heat source dehydrate faster, so those pieces have to be taken out earlier.

Meats – Meats can be marinated after being sliced before you put them in the dehydrator, but pat very dry before placing them on the dehydrator tray. There are marinade recipes for beef jerky, or you can make up your own. A good method for carving a roast into strips is to first freeze the whole roast $\frac{1}{2}$ way before carving it. This makes it very firm, and it is much easier to hold onto so you can cut long thin strips. There is also a very easy method to dehydrate meat in the sun. You drape the meat over a stick suspended between two props. Under it you keep a small slow, smoldering smoking pit. This keeps the flies away. When it's dry and crispy, you're done (8-16 hours or more depending on how much you have, and how sunny it is). Fat is the enemy of dehydrated meat. It will cause your meat to go rancid. So, trim off all the fat as possible before dehydrating, or make sure it is completely dehydrated into a hard, crisp texture.

Fruits & Vegetables – Vegetables are to be washed thoroughly, sliced evenly and patted dry before dehydrating. Make sure the pieces are not too thin. Due to high water content fruits and vegetables can become as thin as a feather and shrink to an inch square in size after being dehydrated, so make sure you slice them in good size pieces and about $\frac{1}{4}$ to $\frac{1}{2}$ inch thick.

Herbs – Grow your favorite herbs yourself. Herbs are really too easy to grow to be a major preserving item. To dehydrate herbs, tear off the leaves and lay out on coffee filters until completely dry. (You don't need to use the dehydrating machine unless you want to.) Then grind

them in a coffee bean grinder and store the ground up herb in jars to use. Do Not vacuum seal ground up herbs in bags – the ground up herb will just get sucked up into your “vacuum”! For long term storage, put the ground up herb in zip lock bags with a small oxygen absorbers to prevent them from getting musty. By the way, “fresh” herbs are used at 3 times the quantity. For example, if a recipe calls for a teaspoon of basil you’d buy from the store; use 3 teaspoons of fresh basil.

Herbs like celery leaves may not dry well, so you would put them in direct sunlight, use a dehydrator, or put them in the oven for a short time until they are dry enough to grind up.



Use a Coffee Bean Grinder to grind your dried herbs.

Vacuum Sealing

You can vacuum seal food that has been placed inside a plastic bag by removing the air and sealing it shut with a vacuum sealer machine. Vacuum sealing can be used to preserve meat, fruit and vegetables **only if it has been already dehydrated**, or to preserve bulk grains like oat meal, rice, and beans that are already dried.

A hose connects from the machine and is placed into the opening of the bag (plastic or Mylar) after it's been filled with food. The open edges of the bag are inserted into the machine at the beginning of this process. The hose draws the air out of the bag and then seals it tightly. Vacuum Sealer Machines (VCM) is only used if the food **has been fully dehydrated first**, or if the food product is a dry grain.

I have two machines. If one breaks down, I still have one.
"One is none and two is one!" - a good prepper slogan!



Using a VCM with Mylar Bags

Vacuum sealing using Mylar bags is preferred since these bags block sunlight and are available in different thicknesses called mils, i.e. 3 mil, 4 mil, 5 mil, etc. They come in all sizes and are used with oxygen absorbers (O's) to eliminate all traces of oxygen. This leaves the food in a preserved atmosphere. Use 300cc's per gal size bag – so a 5 gal bag uses 1500 cc's of O. Os work so well by themselves that you really don't have to use the VCM, but it always helps to vacuum seal the bags to remove as much air as possible so it never hurts to use the VCM.

1. Fill the Mylar bag with food, but leave 4-5 inches along the top to give you enough to seal with an iron. (Ironing is the method used to seal or glue together the open parts of the bag together).
2. Gently iron the bag closed by leaning the open ends of the bag over a table's edge. Iron closed except for about 3 inches down one side longwise so you can insert Os. The point of the iron can puncture the bag, so be careful.

3. Place your O's in through the opening you left on the side.

At this point, you can choose to use VCM or not. If you use the VCM to draw air out before sealing with an iron, go to step #4 below. If you want to seal the bag without using the VCM go to step #5 below.

4. To use the vacuum sealer first, maneuver the tube down the opening where you just put in the Os, and turn on the machine. Draw out as much air as possible.
5. Press out as much air as possible (or the moment you shut the VCM off) quickly press down to close the bag the best you can, pushing out any excess air.
6. Iron the bag closed with as much air removed from the bag as possible.

In a few hours (or less) you will see the bag start to draw inward showing that the Os are working. The bag will become very firm and stiff. The Mylar will hug the food completely with absolutely no loose movement of the food. If this is not the case, then you need to reseal it.

A good practice for using Os is to keep them completely sealed up until they are used. You may prepare all the bags at once to get them ready for the last step where you would put the Os in.

Using a VCM with Plastic (clear) Bags

Vacuum sealing with clear plastic bags is normally done for smaller quantities of food –for a few handfuls at a time of dehydrated food (per bag), or a dozen or so of beef jerky pieces (per bag) for example.

1. Lay the bag flat on the table and put your food in it – Do Not pack it tightly.
- a. 2. Attach your VSM's tub to your machine and slip the other end of the tube into the bag's opening, and pull the bag into the machine. Close the lid. Follow the manufacturer instructions - each type of machine is a little different. (In the description for using Mylar you did not use the sealing feature so you did not insert the bag into the machine.)
- b. When you are done, the vacuum sealed food will be very firm and stiff with the plastic hugging the food completely with absolutely no loose movement of the food. If this is not the case, then you need to reseal it. There is no need to use oxygen absorbers with this method since the food quantity is so small.

Canning is a method using glass jars (Two major brands are Mason and Ball). The tops for the jars are made of two pieces - a flat round circle that lays on the opening called "lids" and the "bands" that have threads that screw down around the circumference of the top to secure the lids down. Jars are given a "bath" in boiling water for a set amount of time according to a recipe. During cooling the lids snap shut tightly with a pop sound. ("Canning" can also refer to the commercial practice of putting food in large #10 cans, but we will not be covering that.)

Supplies - There are special tools to use in canning, such as tongs specially designed to lift the jars out of the hot bath, funnels with wide openings instead of the narrow openings so you can easily fill jars with food, and other gadgets to make the job easier (provided at local retailers.)

Handling Jars – There are special ways to handle jars during canning, such as how to properly "cool" the jars so the glass does not crack, and checking that lids "snap down" as a reaction to pressure changes when the jar cools. Bands are supposed to be snug but not tight when jars are boiled in their bath. These descriptions and other things to look for are described in your recipe books.

Recipes – All the particulars about how to actually can are easily found in books. Some recipes direct you to make brine (spices and salt boiled in water) to use for pickles or cabbage. Using brine may not require the jars to have a bath since for this method you just fill up the jars with the brine and add food like cucumbers or cabbage. There are so many variations and tricks to the trade, such as the practice of submerging your cucumbers in ice water just before putting them in the canning jars to make them turn into crispy pickles. Your recipe books will be invaluable during canning.

Pickles and cabbage did not require a "bath", but are packed in brine (made from a recipe).



The "County Extension Office" where you live has literature and holds classes that teach you how to adhere to safety standards. In canning meat, for example the "baths" involve literally locking down a large metal lid on your pot to create great pressure. Safety is essential. So, a class and

hands on experience to learn this type of canning is essential. You have to decide what type of canning will be best for you, and what you are willing to take the time to learn.

Freezing

Meats, Fruit s and Vegetables – It's a good practice to cut out imperfections, and wash and blanch fruits and vegetables before freezing. Blanching is the act of submerging the food in rapidly boiling water for about 10 seconds to purify it. Some fruits may discolor over time and will benefit from a little lemon juice lightly sprayed on it before putting it in the freezer bags. Meats of course can be frozen uncooked, or after they have been dehydrated.

1. Use a zip lock bag made for the freezer, or wrap several times in a clear plastic wrap to eliminate as much air as possible.
2. When you want to freeze small, wet items like berries lay them out on a flat pan first to freeze before putting them into a zip lock bag. This will protect them from getting mushy or sticking together while freezing.
3. If using zip lock bags, push out as much air as possible before closing. It's possible to zip it shut and use your VCM tube to suck out air. You can also freeze food vacuum sealed in plastic bags as described earlier, but you don't have to vacuum seal foods to freeze them.
4. Lay your food flat in the freezer. Watch that the bag does not droop down in-between the slats of the freezer shelf and get stuck.
5. Consume within six months.

Smoking

You can smoke fish and meat as a way to preserve. In order to smoke fish and meat if you're camping, you will need to build a device in which to hang meat or fish that will retain both heat and smoke – a smoker. The description below describes how to create a smoker if you're camping. If you use a commercially made smoker it will work the same way.

Making a Smoker

1. First, dig a fire pit approximately 2 feet by 2 feet in size and about 1 foot deep in the ground. Next, create the device on which the food will be placed - either a spit or a cooking grate set 2 to 3 feet above the top of your fire pit.
2. A "smoker" will be constructed by building a tee-pee style structure of branches a few inches in diameter, tied together at the top using vine, rope or even a shoelace. The gaps between the branches can be filled using moss, tree boughs, or a wet piece of canvas or even wet cloth. Leave a small area open so you can tend to the fire and turn the food when needed.
3. You can also make a log cabin type box that has only three sides and a top. Whatever you do, the idea is to trap smoke and heat while allowing some air to get in to produce smoke.

4. Collect firewood. Hardwoods or fruit woods are best for smoking fish and meats. Oak, Maple, Hickory, Cherry and Apple wood make smoked foods taste great. Get a variety of wood sizes so you can control the temperature and the amount of needed smoke much easier.
5. After placing the fish or meat to be cooked on the spit or cooking grate, start a small fire. The trick is to keep the fire small, adding wood a little at a time. Let the fire burn down and add some small twigs to the hot coals to help create smoke. After 2 to three hours fish and meat should be ready to eat, but to preserve it for long term smoke it continually until it is leathery and resembles jerky with no moisture and no soft fatty parts at all. Then you can vacuum seal it. Remember you must use indirect heat – not direct heat where the meat is over the flames.

Tools of the Trade: This is a list of common kitchen items to have on hand so you can start preserving.

- A. Coffee bean grinder – You want to be ready to use this during a power outage. You will need alternative 110 electric power made from a 12 Volt solar batter system. To do this you will need an inverter that changes 12Volt to 110. If it's set up properly you could then plug your machine into the inverter box while it's getting its energy from the batter bank through the inverter. Otherwise, a "pistol and mortar" was used to grind things without great to use to electricity on great grandma's farm!
- B. Coffee filters – 1001 uses for these. They can be used to lie out and organize things on the counter. You can write on them, and separate and dry foods while keeping everything sanitary.
- C. Vacuum Sealing Machines – have an inverter from 12V to 110 in case you have no electricity.
- D. 3 feet of clear tubing per machine
- E. Plastic food bags – keep sanitary while stored.
- F. Mylar bags - They come in different sizes, 1 – 5 gallons, and different grades in mils, 3-8 mil (the higher the mil the thicker). It does not hurt to fold the bags for storage. Make sure they are not pierced when food is in them while moving into storage.
- G. Canning equipment for "baths", e.g. jars, lids, bands, jar holder, funnel, large pots, etc.
- H. Buckets with lids – food grade. Even if food is sealed in bags, you can place them in buckets with O's for extra protection.
- I. A well stocked library, i.e. charts, recipe books, calendars (dates stuff grows)
- J. Kitchen food staples based on favorite recipes, i.e. Vinegars, allspice, pickling spice, canning salt, spices, marinades, etc.
- K. Basic Kitchen equipment i.e. cheese cloth (used to strain fluids to take out particles), labels and magic markers, colander (strainer), wooden spoon (this is suggested to use to stir food around in hot jars to get rid of air bubbles before you give the jars a bath), large stainless steel bowls, stainless steel anything (utensils, bowls of different sizes, etc), cutting boards
- L. A "plan" – plan to grow, preserve, store and rotate only what you are going to eat. (Comfort foods and barter foods are additional types of foods to store.)
- M. Controlled environments – a green house, seed area, a large cool storage place, outdoor kitchen, indoor kitchen, library area, a way to organize kitchen tools, etc.