

## Tips on Food Preservation

There are many ways to stretch your food budget. But the tastiest way is to extend the shelf life of the food that you buy and grow. Here are some tips on how to preserve healthy items now found at local farmers market – the healthiest foods around! Websites like this one will help you along in this process: <http://www.preservefood.com>

### ***Dried Herbs***

An inexpensive way to preserve herbs is to dry them. Sun drying doesn't tend to work in the Pacific Northwest because you need consistent outdoor temperatures of 100 degrees to do so – therefore, we have other drying methods listed here.

Sturdy herbs are best suited for air-drying. They are less tender, low-moisture varieties such as sage, thyme, summer savory, dill, bay leaves, oregano, rosemary and marjoram. Basil, tarragon, lemon balm and the mints have a high moisture content and will mold if not dried quickly. Enclosing herbs in a paper bag, with holes for air circulation, protects them from dust and other pollutants. Chives are best frozen.

The best time to cut herbs for drying is just before they flower. This is when the leaves have the most oil, which is what gives herbs aroma and flavor. Different varieties of herbs flower at different times of the season, so look for buds or newly opened flowers as your clue for harvesting. But, if your herbs have already flowered, they can still be harvested and dried. Cut herbs in mid-morning when the leaves are dry but before the hot midday sun.

### ***To air dry herbs, follow the following simple steps:***

1. Use a sharp knife or scissors to cut large stems or branches from mature plants. Gently shake each branch to remove insects. Examine each branch and remove old, damaged or diseased leaves.
2. Rinse each branch in cold water and dry with towels or paper towels to remove all visible water. Wet herbs tend to mold which destroys the whole bunch.
3. Turn branches upside down and remove leaves along the upper stem. Lower leaves are not as pungent as the top leaves nearest buds. Tie five or six stems together in a small bunch. For high moisture herbs, use smaller bunches.
4. Place the bunch upside down in a large brown paper bag. Gather the bag around the stems and tie. Tear or cut several holes in the bag for ventilation. Make sure there is plenty of room inside the bag so leaves do not touch the sides of the bag. Write the name and date on each bag.
5. Hang the bag in a warm, airy room or attic. Leave undisturbed for about two weeks or longer.
6. When the leaves are dry, check for any signs of mold growth. Toss the entire bunch if moldy and try again. Strip dried leaves from stems and discard stems. Crush the leaves if desired, but keep in mind that whole herbs retain their flavor longer than crushed, ground or rubbed herbs.
7. Store dried herbs in small airtight containers away from the light. Zip closure plastic bags, colored bailing wire jars and ceramic crocks can be used for storage. Label and date each container.

### ***Oven Dried Herbs***

Oven drying can be done by placing food on simple cookie sheets in the oven at 120 to 145 degrees (Fahrenheit). Usually, 4 to 12 hours will be sufficient to dry most items. Cookie sheets tend to produce uneven drying so laying herbs directly onto the oven racks or other specially prepared trays is even better. Basil, tarragon, lemon balm and mints have high moisture content and will mold if not dried quickly, so oven drying is a good method for these herbs. Remove the best leaves from the stems, wash and dry. Lay the leaves on a paper towel, single layer without allowing leaves to touch. Cover with another towel and another layer of leaves. Five layers may be dried at one time using this method.

Dry in a very cool oven (high temperatures will result in tasteless herbs – warm setting is best).

The oven light of an electric range or the pilot light of a gas range furnishes enough heat for overnight drying. Leaves dry flat and retain good color. Herbs are ready when they are crispy dry. Store in airtight containers in a cool, dry, dark area to protect color, flavor and fragrance. Crumble when ready to use. Add dried herbs to cooked foods during the last 5 to 10 minutes of cooking time for best flavor.

### ***Canning Foods***

Canning is a very popular method of preserving food, especially garden produce. It was originally developed in France by a chemist named Nicolas Appert in response to a drive by Napoleon to find a way to get more healthy foods for his army while on the march. He figured out that if he heated foods in jars and then sealed them that the foods would stay relatively fresh until they were opened months and even years later.

Since then advances have been made in canning. Louis Pasteur figured out that it was microorganisms that were spoiling the food. The heat used in the canning process kills the microorganisms. Botulism can still be a problem in food that is improperly canned so before you begin canning, it is wise to use safety precautions.

### ***Canning Safety Precautions***

Improperly canned food can result in the growth of botulism or other microorganisms. Eating such foods can cause serious illness and even death. For this reason it is important to strictly adhere to canning procedures as well as standards of cleanliness.

Clostridium botulinum spores are everywhere and eating them is not harmful to humans. It is when they grow in astronomical numbers in an ideal environment, such as an improperly canned jar of food, then begin to die off that they become a problem. They actually produce a neuro-toxin. It is this neuro-toxin that causes the effects of botulism.

Yet botulism and molds, viruses and bacteria that might grow in canned food can be effectively and easily controlled merely by taking simple precautions. Properly heating the jars and the food within them as well as proper sealing is the solution.

Since Clostridium botulinum prefers a low acid environment, high acid foods can be canned under less restrictive conditions using a boiling water canner. These foods have a pH of 4.5 or less. They include: apples, apricots, berries, jams, jellies, peaches, pears, pickles, sauerkraut, tomatoes, and more.

High pH (meaning low in acid) fruits and vegetables require a special device for canning called the pressure canner. The pressure canner can also be used for canning the high acid foods. Low acid foods include: Asparagus, beans, beets, carrots, corn, mushrooms, peas, potatoes, pumpkin, spinach, squash, most any meat.

It is not generally difficult to detect when a canning job has gone bad (done properly - this will seldom happen). The first sign that a can of food is no good is that the lid will pop up (or bulge), also there might be seeping around the seal. Mold growing on the surface of the food is a sure sign of a problem. Also abnormal colors in the brine of food, cloudiness in the brine, a white colored film on the surface of the food can all be indications of contaminated food.

Do not eat contaminated food. It invariably will cause harm. Reheating the food, even boiling it for long periods is not a solution as botulism is not the living part of the Clostridium botulinum, but a byproduct of its life-cycle.

Some traditional methods are NOT recommended such as open kettle canning, paraffin wax sealing, oven or microwave canning.

A final helpful hint regarding safety: It is best to store canned foods at relatively low temperatures as this helps to prevent any activity by microorganisms that might have survived the heating process. Keeping cans in dark, cool places also helps to preserve vitamins and taste.

## **CANNING STEPS**

1 - Have all your equipment ready to use - Wash jars and lids with hot, soapy water. Thoroughly rinse and air dry. Check glass jar rims for even minute chips or cracks as these will not seal. Rinse new caps with hot water before using them.

2 - Prepare the food.

Always start with fruit at the peak of freshness. Fruit and vegetables should be washed, peeled and prepared according to your recipes for preserves, pickles, salsa, spaghetti sauce, etc.. For fruit, I recommend using a product such as "Fruit Fresh" to prevent discoloration. Follow the package directions for the desired amounts of sugar and water for a light, medium or heavy syrup. Prepare jams and jellies according to the directions for the brand of pectin you're using or follow a trusted recipe.

3 - Pack prepared food into hot jars, leaving a head space....usually 1/2" to 1" below the top of the jar rim or the amount stated in the recipe you followed.

Hot Pack or Cold Pack ???? (sometimes called raw pack) - The term "hot pack" in canning directions, means the food is first cooked in a syrup or other liquid. Foods that have been pre-cooked are already hot when they go into the canner, "Cold packed" means the food is raw when it's packed in the jars. Pickles and other foods that easily become soft or soggy go into the canner uncooked.

4 - Carefully run a wooden or other non-metallic spatula or knife down through the ingredients to release any trapped air bubbles.

5 - Wipe the jar rims with a clean, damp cloth to remove all traces of food on the rims.

6 - Place a cap on each jar, making sure it's centered and seated with the rubber edge directly over the rim.

7 - Screw the lid band onto the jar, but do not over tighten.

8 - Fill the canner with hot water - the amount depends on the size of the jars you are using. Most canners have pre-marked guides to give you a general idea.

9 - Place the jars on the rack in the canner or stock pot, adding more water if necessary to cover the jars by 1 to 2 inches.

10 - Cover with lid and bring the water to a full rolling boil. Continue to boil for the time stated in your recipe. A rough guide is about 5 to 10 minutes for pickles, 10 minutes for jam, about 20 to 30 minutes for fruit, fruit pie fillings, and applesauce, and 30 to 45 minutes or more for tomatoes. (Begin timing after the water begins to boil.)

11 - Turn off heat; carefully lift the lid away from you to prevent burning by steam. Using a jar tongs, remove jars from water. Place jars on a dish towel or absorbent mat. Allow to cool several hours or overnight.

12 - Check seals. Lids should be lowered in the middle and not move up or down when you lightly press or tap them. Remove bands wash them and dry them thoroughly. Some sources suggest taking them off for storage. This is important

if they will be in a damp area such as a basement where the rims could become rusty. For storage in a dry pantry, I prefer to store them with the bands in place. If you do store them without the bands, leave a few bands in a convenient spot, to use on jars to hold caps in place after they have been opened for use.

13 - Label and date the jars, then store them in a dark, cool, dry area. where there's no danger of freezing.

### ***Unsuccessful Canning.....***

If any jars did not seal, the center of the cap will be raised, not lowered. Refrigerate the unsealed jar and use the contents within a few days. Unsealed jars may also be reprocessed. Remove their bands and caps; wipe the rims. Carefully check the rim for any small chips. If the jar rim is okay, add new caps and clean bands. If damaged, replace the jar too, then reprocess in a boiling water bath. Most foods can also be frozen instead being reprocessed.

Before using, always examine jars for signs of spoilage - a bulging lid or leaking. To open - remove the band if it was left in place. Use a lift type can opener and gently pry the cap to break the vacuum seal. If the food spurts out when opened; if liquids are cloudy or frothy; if food is slimy or moldy, or if it smells bad, do not use. Never taste the contents of a jar of food with a broken seal or food with even the slightest sign of spoilage. As with any spoiled food, discard it where it is completely out of reach of animals.

### ***FREEZING FOODS***

Freezing food is one of the best ways to preserve the freshness in your food. Fresh frozen peas and corn taste almost as good as if they just came out of the garden. This is because freezing stops most chemical and biological processes that slowly break down a vegetable once it is picked.

Most people prefer to freeze their produce in plastic "ziploc" bags. Better yet, you might want to try Vac Sealing and then freezing your produce, for extra long life and freshness.

Nearly any food, from vegetables, to meats, to prepared soups and stews are amenable to freezing. Yet there are a few that do not fare so well including lettuce and raw potatoes. Some require special preparation including cooking or blanching, and it is always wise to use clean fresh produce.

Don't forget to label and date your packages. Use waterproof pens, permanent markers, like Sharpie pens are very effective.

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Fresh produce contains chemical compounds called enzymes which cause the loss of color, loss of nutrients, flavor changes, and color changes in frozen fruits and vegetables. These enzymes must be inactivated to prevent such reactions from taking place. Enzymes in vegetables are inactivated by the blanching process. Blanching is the exposure of the vegetables to boiling water or steam for a brief period of time. The vegetable must then be rapidly cooled in ice water to prevent it from cooking. Contrary to statements in some publications on home freezing, in most cases blanching is absolutely essential for producing quality frozen vegetables. Blanching also helps to destroy microorganisms on the surface of the vegetable and to make some vegetables, such as broccoli and spinach, more compact.

The major problem associated with enzymes in fruits is the development of brown colors and loss of vitamin C. Because fruits are usually served raw, they are not blanched like vegetables. Instead, enzymes in frozen fruit are controlled by

using chemical compounds which interfere with deteriorative chemical reactions. The most common control chemical is ascorbic acid (vitamin C). Ascorbic acid may be used in its pure form or in commercial mixtures with sugars. One may also coat fruit with sugar or lemon juice to control enzyme-activated browning.

### ***Freezing Vegetables***

1. Assemble the necessary equipment for processing vegetables.
  - a large kettle (minimum capacity of 2 gallons)
  - a colander, wire basket, or net bag for blanching
  - large pans for cooling
  - ice cubes or ice blocks for cooling
  - knives
  - plastic freezer bags or other containers
  - a timer or a clock with a second hand
  - hot pads
2. Choose vegetables for freezing that are at their peak of flavor and texture. If possible, harvest the vegetables in the cool part of the morning and process as quickly as possible. If the freezing process is delayed, immerse the vegetables in very cold water or refrigerate in shallow trays to preserve quality and nutrients.
3. Carefully follow the blanching instructions in the included table for each vegetable. Count the blanching time from when the vegetable is immersed in the vigorously boiling water.

The quality of water used to blanch the vegetables can have an effect on the texture of certain vegetables. Very hard water can cause the toughening of vegetables such as green beans. If you have problems with excessively tough green beans, check into the level of hardness in your water supply.

### ***To Blanch in Boiling Water***

- Use 1 gallon water for each pound of vegetable except for leafy greens, which need 2 gallons per pound.
- Bring water to rolling boil.
- Immerse wire basket or blanching basket mesh bag containing vegetable.
- Cover kettle and boil at top heat the required length of time (see table). Begin counting time as soon as you place the vegetable in water. You may use the same blanching water 2 or 3 times. Keep it at required level. Change the water if it becomes cloudy.
- Cool immediately in ice water for same time used for blanching. Keep chilling water ice cold.
- Drain the vegetables thoroughly. Extra water will form too many ice crystals.
- Pack using dry or tray pack method.
- Freeze.

### ***To Blanch in Steam***

- Put 1 inch of water in kettle, bring to a rolling boil.
- Suspend a thin layer of vegetable in wire basket or loose cheesecloth over rapidly boiling water.
- Cover and steam blanch vegetable required amount of time as listed on table.
- Complete as for boiling water blanching.

### ***To Freeze Fruits***

1. Wash and sort fruits carefully and discard parts that are of poor quality.
2. Prepare fruits as you will use them.
3. Check the chart for fruit being frozen to see if an anti-browning treatment is suggested. Use ascorbic acid preparation as recommended in the chart or in the manufacturer's instructions.
4. Use dry sugar, or sugar syrup in proportions suggested in the chart. Dissolve sugar needed in cold water. Stir. Allow to stand until sugar is completely dissolved. Do not heat. You may hold sugar syrup 2 days in the

refrigerator. If you are preparing a sugarless pack of fruits that brown, be sure to treat with ascorbic acid or other anti-browning agents.

- Pack into good plastic bags, freezer containers or freezer jars. Allow ½-inch headspace for expansion. Pack fruits, such as peaches, that tend to darken, in rigid containers and under the syrup by placing crumpled wax paper between lid and fruit.

Fruit	Preparation
Apricots	Rinse and pit. May be cut in half or left whole. May peel or blanch by dipping in boiling water for 30 seconds. May sweeten with 1/2 cup sugar per quart.
Berries	Rinse berries and drain well. Spread berries on tray and freeze until solid. Then pour into plastic freezer bag or a freezing container. May also pack in sugar (1/4 to 1/2 cup per quart).
Cherries	Rinse de-stem and pit. If sweetening is desired use 2/3 cups sugar. May use 1/2 teaspoon ascorbic acid per quart. May also tray-freeze, then put into bags (see berries).
Figs	Rinse ripe fruit. Be sure to remove stems and then pack in freezer bags.
Grapes	De-stem, wash and place in freezer bags or containers.
Mangoes	Rinse and peel. Cut fruit into pieces. Be sure to avoid the flesh near the pit. Mix slices with 1/4 teaspoon of ascorbic acid and 1/2 cup sugar. Make sure sugar dissolves. Pack in freezer bags or containers.
Melons	Cut the melons in half and remove seeds. Cut again into quarters and eighths, then peel and cut into cubes. Pack in freezer bags or containers.
Peaches, Nectarines	Peel peaches by dipping in boiling water for 1 minute, then placing under cold water. The skins should slip off easily. May leave on the skins of nectarines. May mix with 1/4 teaspoon ascorbic acid and 1/2 cup sugar per quart.
Pears	Peel, halve and core. Heat in boiling sweetened water (syrup) for about 1 1/2 minutes. Stir in 3/4 cup ascorbic acid to each quart of syrup.
Pineapple	Peel and remove eyes and cores. Cut into wedges, slices, etc. Dry-pack in freezer bags or containers.
Plums	Rinse and dry. May slice or pit. Dry-pack or sugar-pack with 1/2 cup sugar per quart.
Rhubarb	Rinse and remove leaves (leaves are poisonous). Cut stems in 1/2 to 1 inch pieces. Dry pack or add sugar (up to 1 cup sugar per quart).

- As well as the fresh packs described above, fruits can be packed in a sugar syrup comprising of a mixture of sugar, water and ascorbic acid. Sweeten to taste, but a rule of thumb is 1/2 cup sugar and 1/4 teaspoon of ascorbic acid per quart of water.

### ***To Use Home Frozen Produce***

Fruits—Thaw fruit at room temperature in its original package to preserve quality and nutritive value. If faster defrosting is required, submerge (if watertight) in cool or lukewarm water or follow microwave defrosting instructions. Serve as soon as defrosted, preferably while a few ice crystals remain.

Vegetables—All vegetables may be cooked from the frozen state except corn-on-the-cob, which should be partially defrosted. Cook frozen vegetables in a small amount of salted water (about ½ cup or less). Cook only until tender—about half as long as if the same vegetable were fresh. You can use a pressure saucepan for cooking frozen vegetables. Follow manufacturer's directions for cooking time. A pack should be thawed enough to break it up before pressure cooking.