



FREEZING FRUITS AND VEGETABLES

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Freezing is a simple and fast method of home food preservation that maintains the natural color, fresh flavor and nutrient value of most fruits and vegetables. Follow the directions in this publication carefully, because the quality of each frozen product is affected by:

- ◆ the freshness of the product used
- ◆ the methods of preparation
- ◆ the packaging, and
- ◆ the freezing conditions.

Steps to Success in Freezing Foods

Good Quality Food

Carefully select foods for freezing. The quality of the food coming out of the freezer will be no better than the quality of the food before it was frozen.

Careful Preparation

Speed in preparing and freezing any product helps to retain quality and keep food safe. It helps to control the growth of bacteria, yeasts and molds and stop the chemical actions of enzymes. Follow the preparation instructions for the different types of food.

Proper Packaging

Package or wrap food for the freezer to protect it from moisture loss and preserve its food value, flavor, color and texture. Use moisture-vapor-proof packaging materials to prevent evaporation and to retain quality. Suitable containers for freezing include wide-mouth can-or-freeze glass jars, freezer quality plastic containers, freezer bags placed inside freezer cardboard containers and freezer grade self-lock plastic bags.

Wide-mouth jars provide easy access when removing foods and are good for foods frozen in liquid. Regular glass jars may break at extreme freezer temperatures. Leave ample headspace to prevent jars from breaking as food expands during freezing.

Rigid plastic containers stack easily in the freezer. Use freezer tape to insure an air-tight seal.

When filling **freezer bags**, leave enough headspace to make a "goose-neck" twist. To make a goose-neck twist, squeeze excess air

from the filled bag, twist the top, turn half way, and tie with freezer wire or a rubber band. Place bags inside a cardboard container. Bags without a protective carton may tear and are difficult to stack.

Flexible wrappings that are acceptable for freezing some dry-packed vegetables, meats, fish and poultry include freezer grade aluminum foil and laminated freezer paper. If a clear freezer wrap is used, it is helpful to place the food in a rigid container to protect against tearing.

Cartons in which you purchase cottage cheese, ice cream, milk, margarine or whipped topping are not moisture-vapor-proof and do not maintain the quality of foods unless they are lined with a freezer-quality bag or wrap. Overwrap fresh meat and poultry that is packaged in clear wrap at the grocery store with a freezer grade wrap. It is not necessary to remove food from its original store wrap.

Label containers with the name of the food and the date frozen. If you rent a food locker, include the locker number on the package.

Loading the Freezer

Cool all foods and syrup before packaging. Freeze foods at 0° F or lower as soon as possible after packaging. Do not overload the freezer with unfrozen food. Add only the amounts that will freeze within 24 hours—usually 2 to 3 pounds of food per cubic foot of freezer space. Keep remaining packages in the refrigerator until they can be transferred to the freezer. Overloading the freezer slows down the rate of freezing and food that freezes too slowly may lose quality. For quickest freezing, place packages close to freezing plates or coils, leaving space between packages so air can circulate freely. After food is completely frozen, arrange it in the freezer so that the food frozen the longest will be used first.

Length of Storage

Frozen food undergoes slow changes while in storage and will not retain its quality indefinitely. The length of time that frozen food will maintain quality in frozen storage depends on:

- ◆ proper handling before freezing
- ◆ packaging material used
- ◆ storage temperature, and
- ◆ kind of food stored.

Use food first that has been stored the longest. Thaw food properly, ideally in the refrigerator, and use immediately after thawing. Since bacteria are not killed by freezing, they will become active as the food thaws. If frozen food is not used soon after thawing, food value will be lost; spoilage, or risk of foodborne illness, may occur.

Freezing Fruits

Selection and Preparation

Most fruit freezes satisfactorily. Select sound, ripe fruit which is slightly riper than that used for canning, but not soft or mushy. Keep fruit cool from the time it is gathered until it is frozen. Wash fruit in cold water, but do not allow the fruit to stand in the water. This will help prevent any loss of food value, flavor and texture.

Prepare only enough fruit to fill a few containers at a time, especially if fruit tends to darken rapidly. Two or 3 quarts is a good quantity to work with at one time.

Prevention of Discoloration

Some fruits, such as peaches, apricots, apples and pears, discolor easily. Use an ascorbic acid pretreatment to prevent discoloration.

Ascorbic acid (vitamin C) prevents discoloration and is available in tablet, crystalline or powdered form. Ascorbic acid tablets are more difficult to dissolve than crystalline or powdered ascorbic acid, but can be finely crushed to assist with dissolving. Dissolve crushed tablets in the cold syrup just before pouring it over the fruit. Use 1/2 teaspoon ascorbic acid per quart of syrup. One-half teaspoon ascorbic acid equals 1500 milligrams. If using tablets, figure the number to use based on the milligrams per tablet.

For a dry sugar pack, sprinkle an ascorbic acid solution over the fruit just before adding sugar. Use 1/4 teaspoon of ascorbic acid dissolved in 1/4 cup cold water for each quart of fruit. Use the same proportion for an unsweetened pack.

Commercial anti-darkening ascorbic acid mixtures are on the market. These usually contain added sugar and citric acid. Follow the manufacturer's directions when using them. Ascorbic acid and commercial products can be obtained from druggists or where other freezing and canning supplies are sold.

Types of Packs

Most fruits have a better texture and flavor if they are packed in sugar or syrup. Some may be packed without sweetening for use in special diets. The method selected to pack fruit will depend on the intended use. Fruit packed in a syrup is generally better for dessert use; fruit packed in dry sugar or unsweetened is better for most cooking purposes, because there is less liquid in the products.

Syrup Pack

Dissolve the recommended amount of sugar in hot water. Allow mixture to cool thoroughly. Pour

approximately 1/2 cup cold syrup into each pint container. Peel or prepare fruit and slice it directly into the container. Add syrup to cover. Leave space at the top of the container to allow for expansion as the food freezes. For fruit which darkens, place crumpled moisture-vapor-proof paper between the lid and the fruit to keep it submerged. Use this table as a guide for headspace:

Containers with wide-top openings	Headspace
Pints (liquid pack)	1/2"
Quarts (liquid pack)	1"
Pints and Quarts (dry pack)	1/2"
Containers with narrow-top openings	
Pints (liquid pack)	3/4"
Quarts (liquid pack)	1 1/2"
Pints and Quarts (dry pack)	1/2"

Sugar Pack

Place prepared fruit in a bowl. To avoid crushing fruit, do not prepare more than 2 pints at one time. Use anti-darkening treatment, if required. Sprinkle the required amount of sugar over fruit and allow to stand for a few minutes until the sugar begins to dissolve in the juice drawn from the fruit. Gently stir fruit until all sugar dissolves and each piece is coated with juice. Pack fruit tightly into containers, but do not crush. Leave 1/2-inch head space in all sizes of containers.

Unsweetened Pack

Unsweetened packs generally yield lower quality products than packs with sugar or syrup; however, they may be needed for special diets. Figs, rhubarb and berries freeze satisfactorily with or without sugar. Treat fruits for discoloration. Leave 1/2 inch headspace in all sizes of containers. A tray pack may also be used for some small whole fruits, such as berries. Spread a single layer of prepared fruit on shallow trays and freeze. When frozen, package and return to freezer. Unsweet-ened fruit can also be packed in water or unsweetened juice, such as apple, pineapple or white grape.

Pack with Artificial Sweeteners

Follow manufacturer's directions for the product used.

Freezing Vegetables

Selection and Preparation

Select fresh, tender vegetables at optimum maturity direct from the garden for quality products. During hot weather, harvest vegetables in the early morning before they have absorbed much heat from the sun. Freeze without delay, because they lose quality rapidly after harvesting. If it is neces-

sary to store vegetables for a short time after harvesting, spread them out loosely in a cool, well ventilated place, or pack loosely in the refrigerator.

The preparation of vegetables for freezing is similar to that required for cooking. Wash thoroughly in cold water, drain, sort, peel, trim and cut as directed for each vegetable.

Blanch Before Packaging

Blanch vegetables before freezing to slow or stop the action of enzymes. Until vegetables are ready to pick, enzymes help them grow and mature. After that they cause loss of flavor and color. If vegetables are not heated thoroughly, the enzymes continue to be active during frozen storage. The vegetables will develop off flavors in a few months and may discolor or toughen. Heating also wilts or softens vegetables and makes them easier to pack. Heating for too long will result in a softening of the texture, and an unnecessary loss of water-soluble vitamins and minerals.

Blanching in Boiling Water

For home freezing, the best way to heat most vegetables is in boiling water. Use a large kettle that can be covered and into which a fine-mesh wire basket fits; or use a blancher which has a blanching basket and cover. A large, loose cheesecloth bag may be used in place of the wire basket in the kettle. For each pound of prepared vegetables, use at least 1 gallon of boiling water in the blancher or kettle. Put vegetables in blanching basket, cheesecloth bag or wire basket and lower into boiling water.

Place cover on blancher or kettle and keep covered during the entire heating period. Keep the heat on high so that the water will continue boiling vigorously. Start timing the heating period as soon as the vegetables are placed into the boiling water. Each vegetable requires a different heating time. Follow exactly the time recommended for each vegetable.

Other Ways to Heat

Pumpkin, sweet potatoes, winter squash and broccoli may be steam blanched. Tomatoes for juice may be simmered. Follow instructions given for each vegetable.

Cooling

Cool vegetables quickly and thoroughly to stop the cooking after blanching. To cool vegetables heated in boiling water, plunge the basket of vegetables immediately into cold running water or a large container of iced water. It will take as long to cool the food as it does to blanch it. Remove vegetables from the water and drain thoroughly.

Preparation of Fruits for Freezing

Fruit	Treat to prevent discoloration	Type of Pack
Apples	yes	Syrup pack: 2 3/4 cups sugar to 4 cups water. Sugar pack: 1/2 cup sugar per quart of fruit.
Applesauce	no	Add 1/3 cup water to each quart of peeled slices. Cook until tender, cool and strain. Sweeten to taste with 1/4 to 3/4 cup sugar per quart of sauce.
Apricots	yes	Peel and slice. If not peeled, heat in boiling water 1/2 minute to keep skins from toughening during freezing. Cool, drain and treat for discoloration. (Add 3/4 teaspoon ascorbic acid per quart). Syrup pack: 2 3/4 cups sugar to 4 cups water. Sugar pack: 1/2 cup sugar per quart of fruit.
Avocados	yes	Mash the pulp. Do not freeze whole or sliced. Add 1/4 teaspoon ascorbic acid to each quart of puree.
Berries (bulk freezing)	no	Place on flat pan in a single layer, freeze 1 to 1 1/2 hours, or until the outer layer is frosty and beginning to freeze hard. Quickly pour into moisture-vapor-proof containers and freeze. Berries can be removed whole in any amount.
Blackberries or Dewberries	no	Syrup pack: 2 3/4 cups sugar to 4 cups water. Sugar pack: 3/4 cups sugar per quart of whole berries or one cup sugar per quart of crushed pureed berries.
Cranberries	no	Syrup pack: 4 cups sugar to 4 cups water. Sugar pack: 3/4 cup sugar per quart of whole berries or 1 cup sugar per quart of crushed or pureed berries.
Cantaloupe	no	Syrup pack: Cut into slices, cubes or balls, 2 cups sugar to 4 cups water.
Cherries	no	Remove pits if desired. Sugar pack: 3/4 cup sugar per quart of cherries, if they are to be used for pies. Syrup pack: 7 cups sugar to 4 cups of water, if cherries are to be served uncooked.
Citrus Fruits	no	Knife-peel fruit, removing all white membrane fruits and fiber. Separate segments and remove seeds. Syrup pack: 2 3/4 cups sugar to 4 cups excess juice and water. For better quality, add 1/2 teaspoon ascorbic acid per quart syrup.
Citrus Juices	no	Extract juice from fruit, using squeezer that does not press oil from rind. Sweeten with 2 tablespoons sugar for each quart of juice or pack without sugar. For better quality add 3/4 teaspoon ascorbic acid for each gallon of juice.
Figs	yes	Remove stems, peel if desired. Halve or leave whole. Freeze without sugar if desired. Syrup pack: 2 3/4 cups sugar to 4 cups water. For better product add 3/4 teaspoon ascorbic acid or 1/2 cup lemon juice per quart of syrup.
Fruit Cocktail	yes	Use any combination of fruit desired. Syrup pack: 2 to 3 cups sugar to 4 cups water depending upon sweetness of fruits used.
Grapes	no	Syrup pack: 2 3/4 cups sugar to 4 cups water.
Peaches	yes	Syrup pack: 2 3/4 cups sugar to 4 cups water. Sugar pack: 2/3 cup sugar per quart of sliced peaches or 1 cup sugar per quart of crushed fruit.
Pears	yes	Syrup pack: Heat pear halves or quarters in boiling syrup made from 2 3/4 cups sugar to 4 cups water. Drain and cool pears and syrup before freezing. (Use 3/4 teaspoon ascorbic acid per quart.)
Persimmons	yes	Cut into quarters, remove seeds and press through a sieve. Add 1/8 teaspoon ascorbic acid per quart of persimmons. Sugar pack: 1 cup sugar per quart of puree. May be packed unsweetened.

Preparation of Fruits for Freezing

Fruit	Treat to prevent discoloration	Type of Pack
Pineapple	no	Slice, crush or cut into chunks. Syrup pack: 2 cups sugar to 4 cups juice and water. May be packed dry unsweetened.
Plums	yes	Slice large plums and remove pit if desired. Syrup pack: 3 to 4 cups sugar to 4 cups water. Soft plums may be made into puree by pressing through a sieve or colander. Sugar pack: 1/2 to 1 cup sugar per quart of puree.
Strawberries	no	Sugar pack: Leave small berries whole, slice large ones. 3/4 cup sugar per quart of berries.
Watermelon	no	Cut into slices, cubes or balls. Syrup pack: 2 cups sugar to 4 cups water.

Preparation of Vegetables for Freezing

Vegetable	Blanching time in minutes	Comments
Asparagus	small stalks-2 stalks-3 large stalks-4	Trim stalks by removing scales with medium a sharp knife. Cut into even lengths.
Beans: lima, buter or pinto	small beans-2 medium beans-3 large beans-4	
Beans: green, snap or wax	3	Cut into 2-to 4-inch lengths.
Beets		Leave roots and 1/2-inch of tops. Cook in boiling water until tender. For small beets, 25 to 30 minutes; medium sized beets, 45 to 50 minutes. Drain and cool in cold water. Peel. Slice or dice.
Broccoli	3 5 (steam)	If necessary to remove insects, soak for 1/2 hour in a solution of 4 teaspoons salt to 1 gallon of water. Split lengthwise into pieces so that flowerets are not more than 1 1/2 inches across.
Cabbage	1 1/2	Cut into medium to coarse shreds or thin wedges, or separate head into leaves.
Carrots	small whole-5 diced or sliced-2 lengthwise strips-2	Leave small carrots whole. Cut others into 1/4-inch cubes, thin slices or lengthwise strips.
Cauliflower	1 inch pieces-3	Add 4 teaspoons of salt to 1 gallon of water for blanching. If necessary to remove insects, soak for 1/2 hour in a solution of 4 teaspoons of salt to 1 gallon of water.
Corn, Sweet		Select ears with plump, tender kernels and thin, sweet milk. If the milk is thick and starchy, it is better to freeze corn as cream style.
Whole Grain Style (kernel)	on cob-4	After blanching on cob, cut kernels from cob at about 2/3 the depth of the kernels.
Cream Style	on cob-4	After blanching on cob, cut kernel tips once or twice, no deeper than the center of kernels. Scrape the cobs with the back of knife to remove the juice and heart of the kernel.
On-the-Cob		
small ears	(up to 1 1/4 inches in diameter)-7	
medium ears	(1 1/4 to 1 1/2 inches in diameter)-9	
large ears	(over 1 1/2 inches in diameter)-11	
Eggplant	4	Cut into 1/3-inch slices or cubes. Blanch in one gallon of water with 1/2 cup of lemon juice added. Cool and drain.

Preparation of Vegetables for Freezing

Vegetable in minutes	Blanching time	Comments
Greens	Collards-3 all greens-2 other very tender leaves of spinach-1 1/2	Includes beet greens, chard, collards, kale, mustard greens, spinach and turnip greens. Cut chard leaves into pieces.
Okra	small pods-3 large pods-4	Cut off stems, but avoid cutting open the seed cells. After blanching, leave whole or slice crosswise. For frying, dredge slices with meal or flour, tray freeze and package.
Onions whole bulbs chopped or green	3 to 7, or until center is heated	Peel and clean as for eating. Can be frozen without blanching.
Peas: English Blackeye, crowder, cream, field	1 1/2 2	
Peppers bell or sweet	halves-3 slices-2	Peppers can also be frozen raw, without blanching.
Pimentos		Roast in a 400° oven for 6 to 8 minutes. Remove charred skins by rinsing in cold water. Drain, core and remove seeds. Leave whole or cut into desired size.
Potatoes, sweet		Use medium to large mature potatoes that have been cured. Wash and cook until almost tender in water, pressure cooker or oven. Cool, cut in halves, slice or mash. To prevent darkening, dip for 5 seconds in a solution of 1 tablespoon of citric acid or 1/2 cup lemon juice to 1 of quart water. To keep mashed sweet potatoes from darkening, mix 2 tablespoons of orange or lemon juice with each quart of mashed potatoes.
Irish new potatoes mature		Peel or scrape and wash. For French fried: peel mature potatoes and slice into 1/3- x 3/8-inch strips. Rinse in cold water. Dry. Fry small amounts in deep hot fat (360°) about 5 minutes until tender but not brown. Drain, cool and package.
Pumpkin		Cut into small pieces, remove seeds and peel. Cook until soft in boiling water in steam, pressure cooker or oven. Mash pulp or put through sieve. Cool by placing pan containing pumpkin over chopped ice and stir pumpkin occasionally until cool.
Rhubarb	1	Cut into 2-inch pieces. Heating helps retain color and flavor; however, rhubarb may be packed raw without sugar or covered with a cold syrup made from 2 3/4 cups sugar to 4 cups water. Directions for preparing syrup are in instructions for freezing fruits.
Squash summer winter	3	Cut in 1/2-inch slices. Same as for pumpkin. For spaghetti squash, mashing the pulp is not necessary.
Tomatoes juice		Cut tomatoes into quarters or eighths. Simmer 5 to 10 minutes. Press through a sieve. If desired, add 1 tablespoon of salt to each quart of juice for seasoning.
stewed		Remove stem ends, peel and quarter tomatoes. Cover and cook until tender, about 10 to 20 minutes. Place pan containing tomatoes in ice water to cool.
raw		Dip in boiling water for 30 to 60 seconds to loosen skins. Core and peel. Freeze whole or in pieces.
Turnips	2	Cut into 1/2-inch cubes. Water blanch.

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