
FREEZING FRUITS AND VEGETABLES

Freezing is one of the simplest and least time consuming methods of food preservation. For best quality, it is important to follow directions carefully. Color, flavor, and nutritive value can be affected by freshness of the produce selected, method of preparation and packaging, and conditions of freezing.

Freezing fruits

(See chart on pages 3 and 4 for specific directions.)

- Select fully ripe fruit that is not soft or mushy. Most fruit has the best flavor, color, and food value if it has ripened on the tree or vine.
- Carefully wash and sort fruit. Trim and discard parts that are green or bruised.
- Peel, trim, pit and slice fruit as directed.
- Prepare fruit for freezing by packing with or without sugar (or syrup). Use ascorbic acid to retard browning of light-color fruit. (See *Methods of freezing*.)
- Pack prepared fruit in suitable containers as directed.
- Store in freezer as directed.
- To serve, thaw fruit at room temperature or in the refrigerator. Serve while a few ice crystals remain.

Methods of freezing

Without sugar

Any fruit can be frozen without sugar. However, the texture may be softer than that of fruit frozen with sugar.

Some fruits such as berries, cherries, and grapes may be frozen in a single layer on cookie sheets before packing in containers. This prevents them from sticking together. Serve them frozen as snacks or thaw and use as a topping for salads or desserts.

If desired, a water pack (without sugar) can be used for fruit such as peaches. Fruit juice (either extracted from the fruit or purchased) can be used. Orange and berry juices are suitable.

Syrup pack

Fruits that will be served uncooked are often packed in syrup. The syrup may be prepared from either cane or beet sugar. If desired, part of the sugar may be replaced by corn syrup or honey. Select the strength of syrup that will give the desired flavor. (This

Strength of syrup	Water (cups)	Sugar (cups)	Yield (cups)
Light	4	1	4 ³ / ₄
Medium	4	1 ³ / ₄	5
Heavy	4	2 ³ / ₄	5 ¹ / ₂

Prepared by Carolyn A. Raab, Extension food and nutrition specialist, Oregon State University, and reviewed by Extension food safety specialists at Washington State University and the University of Idaho.

will depend on the sweetness of the fruit, personal preference, and intended use.) Allow about $\frac{2}{3}$ cup of syrup for each pint of fruit; $1\frac{1}{3}$ cups for each quart of fruit. Dissolve sugar in hot or cold water. If hot, cool before using.

Sugar pack

Juicy fruits and those that will be used for pies or other cooked products are often packed in sugar. Use about 1 cup of sugar for each 2 to 3 pounds of fruit. Sugar and fruit should be gently but thoroughly mixed until the sugar has dissolved in the juice.

Retarding browning

Ascorbic acid When freezing light-color fruit, ascorbic acid can be added to inhibit browning. Ascorbic acid in powder or crystal form is available at pharmacies. Ascorbic acid tablets also can be used. Crush finely before use. (Three crushed 500-milligram vitamin C tablets equal $\frac{1}{2}$ teaspoon of ascorbic acid.)

For syrup or liquid packs, add $\frac{1}{2}$ teaspoon powdered or crushed ascorbic acid to each quart (4 cups) of cold syrup.

For sugar or sugarless (dry) packs, dissolve $\frac{1}{2}$ teaspoon ascorbic acid in 3 tablespoons cold water and sprinkle over 4 cups of fruit just before adding sugar.

Commercial antidarkening mixture Follow manufacturer's directions.

Freezing vegetables

(See chart on pages 4 and 5 for specific directions.)

- Select top-quality vegetables. If possible, harvest them in the early morning or early evening when it is cool. Prepare them as soon as possible to avoid loss of quality. If there is a delay, store them in the refrigerator.
- Wash and sort vegetables in cold running water.
- Peel, trim, and cut into pieces as directed.
- Prepare vegetables for freezing by blanching. This short heat treatment stops enzymes that otherwise cause undesirable changes in flavor, texture, color and nutritive value during storage. (See *Methods of blanching*.) Unless otherwise indicated, times in the chart refer to blanching in boiling water. Steam-blanching takes longer.
- Pack prepared vegetables in suitable containers as directed.
- To serve, cook frozen vegetables in a small amount of salted water until tender. Corn-on-the-cob should be partially thawed before cooking. To cook in a microwave oven, refer to the instruction manual.

Methods of blanching

In boiling water

- Put water in a large kettle with a tight-fitting lid and bring to a rolling boil. (Allow 1 gallon of water for each pound of vegetables except for leafy greens, which require 2 gallons per pound.)
- Put a small quantity of vegetables in a wire basket, strainer, or cheesecloth bag. Immerse in water.
- Cover kettle and boil at top heat for the required length of time (see chart). Begin counting time as soon as vegetables are placed in the water.
- Cool immediately in cold running water (or ice water) for about the same length of time used for blanching. When thoroughly cool, drain and pack.

In steam

- Put 1 inch of water in a kettle and bring to a rolling boil.
- Put a small quantity of vegetables in a steamer basket or in a colander with legs. Suspend over boiling water.
- Cover kettle and heat vegetables for the required length of time.
- Cool immediately in cold running water (or ice water) for about the same length of time used for blanching. When thoroughly cool, drain and pack.

In microwave oven

For recommended blanching times in the microwave, check the oven's instruction manual.

Freezing steps

Packing in containers

Food must be packed in suitable containers for freezing. These should be moisture-vapor-resistant, durable, and easy to handle. Select containers that are a good shape (to pack well in the freezer) and a good size (to feed your family for one or two meals). Some common types are:

- Plastic freezer bags
- Vacuum packaging designed for freezing
- Rigid plastic containers
- Glass canning jars with wide mouths

Pack foods tightly into containers. Allow ample headspace between the packed food and the lid to allow room for expansion during freezing. Products packed without added sugar or liquid require ½ inch in pint containers with a wide top opening (1 inch in quarts). Allow ¾ inch in pint containers with a narrow top opening (1½ inches in quart containers).

To keep fruit covered with liquid, put a crumpled piece of waxed paper between the fruit and the lid. This will keep the surface from darkening and drying out.

When food is packed in freezer bags, squeeze out as much air as possible.

Label containers with name of product, type of pack (for fruit), and date.

Loading the freezer

Freeze fruits and vegetables soon after they are packed. If there will be a delay before freezing, keep packages in the refrigerator.

Foods that freeze too slowly may lose quality or spoil. Put no more unfrozen food into a home freezer than will freeze within

24 hours. Usually this will be about 2 or 3 pounds of food for each cubic foot of its capacity. For fastest freezing, place packages against freezing plates or coils and leave a little space between them so that air can circulate freely.

Storing frozen food

After freezing, packages may be stored close together. Store them at 0°F (-18°C) or below. Foods lose quality and nutritive value much faster at higher temperatures. Use a freezer thermometer to check the temperature periodically.

Most fruits and vegetables maintain high quality for 8 to 12 months. (Unsweetened fruits lose quality faster than those packed in sugar or syrup.) Storage for longer periods will affect the quality of the frozen foods, but they will be safe to eat.

Keeping a freezer inventory and dating packages will help to rotate the supply.

Freezing juices

A variety of fruit juices can be prepared including cherry, grape, grapefruit, plum, raspberry, and strawberry. The procedure is similar for each.

- Select fully ripe, good quality fruit.
- Prepare as directed for freezing.
- Extract juice by crushing fruit and straining through a jelly bag. (Heat fruit slightly to start flow of juice if necessary.) A steam juicer also can be used.
- Sweeten juice if desired.
- Pour into containers, allowing adequate headspace. (Refrigerate grape juice overnight before packing, to allow sediment to sink to the bottom.)
- Seal and freeze.

Tomato juice can be extracted by simmering quarters or eighths for 5 to 10 minutes. (Skipping this step causes the juice to separate.) Then press through a sieve or food mill. Season with salt, if desired. Pour into containers and freeze.

Refreezing frozen foods

Occasionally a home freezer stops running. The time that food will stay frozen depends on the amount of food in the freezer and the temperature of the food. A full load of food will stay frozen for up to 2 days if the freezer is not opened. Dry ice can be used to keep foods frozen longer. If the power will be off for a long period of time, food should be transferred to a locker plant.

It is safe to refreeze fruits and vegetables that still have ice crystals. For best quality, refreeze food in small quantities.

If the temperature has warmed above 40°F (5°C), foods may not be fit for refreezing. Use a freezer thermometer to determine the temperature.

Thawed frozen fruit is safe to eat. However, it may have an "off" flavor if fermentation has begun.

Do not eat thawed vegetables that are above 40°F. The low acidity of vegetables makes it possible for harmful bacteria to grow. Unsafe products may not show signs of spoilage.

For information about the safety of particular products, call your local county Extension office. Be prepared to give the "history" of the food (length of time that the power was off and temperature of the food before the freezer began to run again).

Freezing fruits

See page 1 for details on packing in sugar and syrup. Fruits also may be frozen as purées for making jam. Use ascorbic acid with light-color fruits. Store at 0°F (-18°C) for top quality.

Apples	Select crisp, firm fruit. Wash, peel, core, and slice. To prevent browning during preparation, slice into salt water (2 tablespoons salt to a gallon of water). Drain. Pack in syrup, or pack in sugar, or pack without sugar. Use ascorbic acid to retard browning during storage.
Applesauce	Wash apples, peel if desired, core and slice. Cook until tender in water (1/3 cup to each quart of slices). Cool and strain if necessary. Sweeten to taste.
Apricots	Select firm, ripe, uniformly yellow fruit. Wash, halve, and pit. Peel and slice if desired. (To loosen skins, dip in boiling water for 15 to 20 seconds.) Pack in syrup or pack in sugar. Use ascorbic acid to retard browning.
Avocados	Best frozen as purée (not whole or sliced). Select avocados that are soft and with rinds free from dark blemishes. Peel, halve, and remove pit. Mash the pulp. For better quality, add 1/4 teaspoon of ascorbic acid per quart. Pack without sugar if using for salads, dips, or sandwiches.
Bananas	Select firm, ripe bananas. Peel and mash thoroughly. Add 1/2 teaspoon ascorbic acid per cup.
Blackberries	Also boysenberries, loganberries. Select firm, fully ripe fruit with glossy skins. Wash and drain. Pack in syrup, or pack in sugar, or pack without sugar.
Blueberries	Also huckleberries. Select ripe berries with tender skins. For syrup pack, wash and drain. (For dry pack without sugar, wash before eating instead.) If desired, steam for 1 minute and cool immediately to tenderize skin. Pack in syrup or pack without sugar.
Cantaloupe	Also other melons. Select firm, well-colored, ripe melons. Cut in half, remove seeds and peel. Cut into slices, cubes, or balls. Pack in syrup.
Cherries, sour	Select bright red, tree-ripened fruit. Stem and wash. Drain and pit. Pack in syrup, or pack in sugar, or pack without sugar.
Cherries, sweet	Select tree-ripened red varieties. Stem and wash. Remove pits if desired. Pack in syrup or pack without sugar. Use ascorbic acid to retard browning.
Currants	Select fully ripe, bright red fruit. Wash and stem. Pack in syrup, or pack in sugar, or pack without sugar.
Figs	Select tree-ripened, soft-ripe fruit. Wash and cut off stems. Peel if desired. Slice or leave whole. Pack in syrup or pack without sugar. Use ascorbic acid to retard browning.
Gooseberries	Select fully ripe (for pie) or slightly underripe (for jelly) berries. Wash and remove stems and blossom ends. Pack in syrup or pack without sugar.
Grapefruit	Also oranges. Select firm, tree-ripened fruit, heavy for its size and free from soft spots. Divide fruit into sections, removing all membranes and seeds. Slice if desired. Pack in syrup (made with excess juice and water if needed) or pack in water without sugar.
Nectarines & peaches	Select firm, fully ripe, well-colored fruit. Wash, peel, and remove pit. Cut in halves, quarters, or slices. Pack in syrup or pack in orange juice or in water without sugar. Use ascorbic acid to retard browning.
Pears	Select well-ripened, firm fruit. Wash and peel. Cut in halves or quarters and remove cores. Heat in boiling syrup for 1 to 2 minutes (depending on size of pieces). Drain, cool, and pack in syrup. Use ascorbic acid to retard browning.
Persimmons	Select orange, soft-ripe persimmons. Sort, wash, peel, and cut into sections. Press fruit through a sieve to make a purée. To each quart of purée, add 1/8 teaspoon ascorbic acid. Purée made from cultivated varieties may be packed with or without sugar.

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Store at 0°F (-18°C) for top quality

Freezing fruits—continued

Plums	Also prunes. Select firm, tree-ripened fruit. Wash. Cut in halves and quarters or leave whole. Pack in syrup or pack without sugar. Use ascorbic acid to retard browning.
Raspberries	Select fully ripe, juicy berries. (Seedy berries are best for purées or juice.) Wash and drain. Pack in syrup or pack in sugar or pack without sugar.
Rhubarb	Select firm, well-colored stalks. Wash, trim and cut into 1- to 2-inch pieces. Pack in syrup or pack without sugar.
Strawberries	Select firm, ripe red berries. Wash, drain, and remove hulls. Slice if desired. Pack in syrup, or pack in sugar, or pack without sugar.

Freezing vegetables

See page 2 for details on blanching. Times refer to water blanching in most cases. Begin counting as soon as vegetables are placed in water. Store at 0°F (-18°C) for top quality.

Asparagus	Select young stalks with compact tips. Wash and sort by size. Leave whole or cut in 1- to 2-inch lengths. Blanch small stalks 1½ minutes, medium stalks 2 minutes, large stalks 3 minutes. Cool.
Beans— green (snap or wax)	Select young stringless beans. Wash, snip off tips. Cut or break into suitable pieces or slice lengthwise into strips. Blanch 3 minutes. Cool.
Beans— lima, butter, or pinto	Harvest beans while seeds are green. Wash, shell, and sort according to size. Water-blanch small beans 2 minutes, medium beans 3 minutes, and large beans 4 minutes. Cool.
Beets	Select beets less than 3 inches across. Sort by size. Remove tops and wash. Cook until tender (small 25 to 30 minutes; medium 45 to 50 minutes). Cool. Peel and slice or dice.
Broccoli	Select compact, dark green heads. Wash and trim leaves and woody ends. If necessary to remove insects, soak 30 minutes in salt brine (4 teaspoons salt to 1 gallon of water). Rinse and drain. Cut through stalks lengthwise, leaving heads 1 inch in diameter. Blanch 3 minutes in water or steam-blanch 5 minutes. Cool. Pack heads and stalks ends alternately in container.
Brussels sprouts	Select green, firm, compact heads. Wash and trim outer leaves. Soak 30 minutes in salt brine (see broccoli). Rinse and drain. Blanch medium heads 4 minutes, large heads 5 minutes. Cool.
Carrots	Select tender carrots. Remove tops, wash, and scrape. Dice or slice ¼ inch thick. Blanch 2 minutes. Cool.
Cauliflower	Select firm, white heads. Wash and trim. Split heads into pieces 1 inch across. If necessary to remove insects, soak 30 minutes in salt brine (4 teaspoons salt to 1 gallon of water). Rinse and drain. Blanch 3 minutes. Cool.
Corn— cut or on the cob	Select ears with plump kernels and thin, sweet milk. Husk, remove silk, and wash. <i>Whole kernel or cream style:</i> Blanch 4 to 5 minutes. Cool thoroughly. Drain, cut off cob. <i>On-the-cob:</i> Blanch small ears 7 minutes, medium ears 9 minutes, large ears 11 minutes. Cool, drain. Wrap each ear separately or tightly pack desired number in large freezer bags or containers.
Herbs—fresh	Wash, drain, and pat dry with paper towels. Wrap a few sprigs or leaves in freezer wrap and place in a freezer bag. Chop and use frozen herbs in cooked dishes.
Mushrooms	Select edible mushrooms free of spots or decay. Wash and remove stem base. Freeze small mushrooms whole; cut large ones into four or more pieces. When blanching, add 1 teaspoon citric acid (or 3 teaspoons lemon juice or ½ teaspoon ascorbic acid) per quart of water to prevent darkening. Blanch medium or small whole mushrooms 5 minutes, cut pieces 3 minutes. Cool. <i>Or:</i> Slice mushrooms ¼ inch thick and sauté in butter until almost done. Cool by setting pan in cold water.

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Freezing vegetables—continued

Onions	Select fully mature onions. Peel, wash, and chop. Blanch 1½ minutes. Cool. May also be frozen unblanched.
Peas—edible pod	Select young, tender pods. Wash. Remove stems, blossom ends, and any strings. Blanch small pods 1 minute, large pods 1½ to 2 minutes. Cool.
Peas—green	Select bright green, plump, firm pods. Shell. Blanch 1½ to 2 minutes. Cool.
Peppers—sweet (green)	Select firm, crisp peppers. Wash, cut out stem, and remove seeds. Halve, slice, or dice. Blanch halved peppers 3 minutes; sliced or diced 2 minutes. Cool. May also be frozen unblanched.
Peppers—hot (green chile)	Select firm, smooth peppers. Wash and dry. Broil for 6 to 8 minutes to loosen skin. (First make small slit in each to allow steam to escape.) Cool. Remove peel, seeds, and stems before or after freezing. Protect hands with rubber gloves.
Potatoes	Wash, pare; remove deep eyes, bruises, and green surface coloring. Cut in ¼- to ½-inch cubes. Blanch 5 minutes. Cool. <i>For french fries:</i> Pare and cut in thin strips. Fry in deep fat until light brown. Drain and cool. To serve, bake at 400°F for 10 to 20 minutes.
Potatoes—sweet	Select medium to large sweet potatoes. Wash and cook until almost tender. Peel, cut in halves, slice, or mash. To prevent browning, dip 5 seconds in a solution of 1 tablespoon citric acid or ½ cup lemon juice to 1 quart of water. To keep mashed sweet potatoes from darkening, mix 2 tablespoons orange or lemon juice with each quart of mashed sweet potatoes.
Pumpkin	Also other winter squash. Select full-color, mature pumpkin. Cut or break into fairly uniform pieces. Remove seeds. Bake at 350°F or steam until tender. Cool, scoop pulp from rind, and mash or put through ricer.
Spinach	Also other greens. Select young, tender leaves. Remove tough stems. Wash. Blanch most leafy greens 2 minutes. Blanch collards and stem portions of Swiss chard 3 to 4 minutes. Blanch very tender spinach 1½ minutes. Cool.
Tomatoes	Best frozen stewed or puréed. Select ripe tomatoes free from blemishes. Remove stem ends, peel, and quarter. Cook until tender. Cool by setting pan in cold water.
Zucchini	Also other summer squash. Select young squash with small seeds and tender rind. Wash and slice. Blanch ¼-inch slices 3 minutes; 1½-inch slices 6 minutes. Cool.

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