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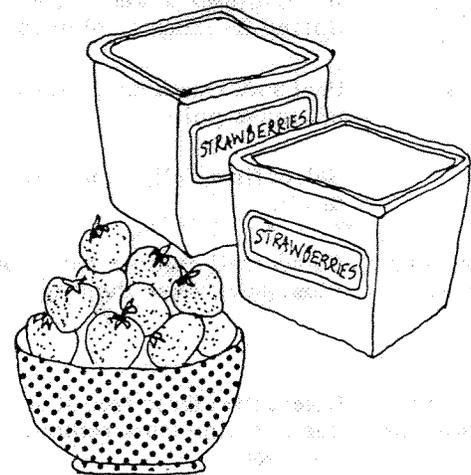
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Freezing fruits

Pat Kendall¹

Quick Facts

- Freezing is one of the simplest and least time-consuming ways to preserve foods at home.
- Freezing containers should be easy to seal, waterproof, durable and should not become brittle at low temperatures.
- Berries and cherries are best frozen soon after harvest; such fruits as peaches, plums and apples may need to be fully ripened before freezing.
- Some fruits need pretreatment to prevent darkening before freezing.
- Fruits may be packed presweetened in syrup or sugar, unsweetened or tray packed.
- Fruits should be packed tightly to cut down on the amount of air in the package.
- Small whole fruits, such as berries or cherries, can be frozen individually on trays, packaged in bags and later used in salads or garnishes.
- Most fruits maintain high quality for 8 to 12 months at 0° F or below; citrus fruits and citrus juices may be stored satisfactorily for 4 to 6 months.



Selecting Freezing Containers

To prevent evaporation and retain the highest quality in frozen foods, packaging materials also should be moisture/vapor-proof. Glass jars, metal and rigid plastic containers are moisture/vapor-proof. Many packaging materials designed for frozen food, including most plastic bags and heavily waxed cartons, are not moisture/vapor-proof, but are sufficiently moisture/vapor-resistant to be used satisfactorily. Paper cartons from cottage cheese or milk are not sufficiently moisture/vapor-resistant to be suitable for quality frozen foods. If these cartons are used, the food should be kept no more than two weeks for best quality.

Container shape and size is another consideration. Food can be removed easily before thawing if containers have straight sides or sides that flare out. Square or rectangular flat-sided containers waste less freezer space than round containers.

Freezing is one of the simplest and least time-consuming ways to preserve foods at home. Freezing does not sterilize food; the extreme cold simply retards growth of micro-organisms and slows down changes that affect quality or cause spoilage in food. Properly frozen fruits will retain much of their fresh flavor and nutritive value. Their texture may be somewhat softer, however, than that of fresh fruit.

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Selection and Preparation of Fruit

Berries and cherries are best frozen soon after harvest. Peaches, apricots, plums, apples and pineapples may need to be held a short time after harvest to fully ripen before freezing.

Sort, wash and drain fruits carefully, discarding parts that are green or of poor quality. Do not allow fruit to soak in wash water or there will be loss of nutrients and flavor. Prepare fruits as they will be used—stemmed, pitted, peeled and sliced. It is best to prepare enough fruit for only a few containers at a time, especially for those fruits that darken rapidly.

Galvanized equipment should not be used in direct contact with fruit because the acid in the fruit dissolves zinc, which is poisonous. Also be wary of using iron utensils or chipped enamel ware as metallic off-flavors can result.

Preventing Darkening

Some fruits need pretreatment to prevent darkening. There are several anti-darkening treatments that may be used.

Ascorbic acid (vitamin C) is very effective in preserving the color and flavor of fruit and adds nutritive value. Ascorbic acid is available from pharmacies or where canning supplies are sold. To use, crystalline or powdered forms can be dissolved in a little cold water. When using tablets, they should be crushed first so they will dissolve easily.

For syrup packs, dissolve $\frac{1}{2}$ teaspoon crystalline ascorbic acid or 1500 milligrams vitamin C in each quart of cold syrup shortly before using. Stir it in gently so not to stir in air. Refrigerate until ready to use.

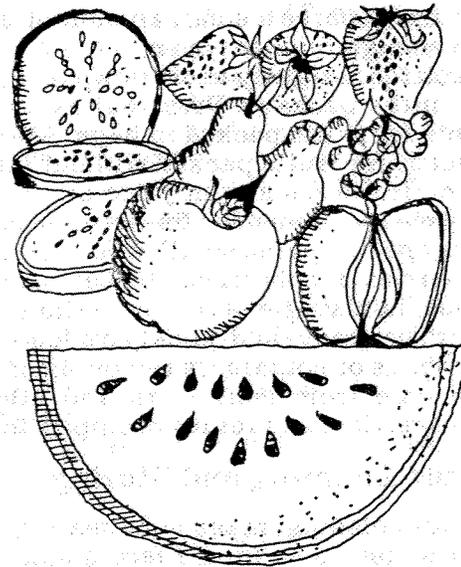
For sugar and unsweetened packs, sprinkle $\frac{1}{4}$ teaspoon crystalline ascorbic acid dissolved in $\frac{1}{4}$ cup of cold water over each quart of fruit just before adding sugar, if used.

In fruit juices, add $\frac{1}{4}$ teaspoon ascorbic acid directly to each quart of juice. Stir only enough to dissolve ascorbic acid.

In crushed fruits and fruit purees, add $\frac{1}{4}$ teaspoon crystalline ascorbic acid dissolved in $\frac{1}{4}$ cup of cold water to each quart of the fruit preparation and mix.

Ascorbic acid mixtures. Special commercial anti-darkening preparations made of ascorbic acid mixed with sugar or with sugar and citric acid also may be used to retard darkening. Manufacturer's directions should be followed if one of these is used.

Citric acid or lemon juice may be used for treating some fruits. However, neither is as effective as ascorbic acid. Dissolve $\frac{1}{4}$ teaspoon crystalline citric acid or 3 tablespoons of lemon juice in each quart of cold water. Dip the prepared fruit in the solution and leave for 1 to 2 minutes. Drain and pack with sugar, syrup, water or fruit juice. One gallon of citric acid or lemon juice solution treats about 1 bushel of fruit.



Steaming for a few minutes before packing is enough to prevent firm fruits, such as apples, from darkening.

Methods of Packing Fruits

There are several ways to pack fruit for freezing. Fruits packed in syrup generally are best for most cooking processes. Small whole fruits, such as berries, packed on trays are good for salads or garnishes. (See Table 1 for sugar syrup recipes.)

Syrup pack. A 30-percent syrup— $2\frac{1}{4}$ cups sugar and $5\frac{1}{4}$ cups water—is recommended for most fruits. Lighter syrups are lower in caloric content and especially desirable for mild-flavored fruits, such as melons. Heavier syrups may be needed for very sour fruits. Allow $\frac{1}{2}$ to $\frac{2}{3}$ cup of syrup for each pint package of fruit.

To pack fruit in syrup, pour $\frac{1}{2}$ cup cold syrup into each container. Add fruit and cover with additional syrup, leaving sufficient headspace at top of container. Allow $\frac{1}{2}$ -inch headspace for wide-top pints; 1 inch for wide-top quarts; $\frac{3}{4}$ inch for narrow-top pints and $1\frac{1}{2}$ inches for narrow-top quarts. Allow $1\frac{1}{2}$ inches headspace for juices packed in narrow-top containers, regardless of size.

Sugar pack. Place prepared, cut fruit in a bowl or shallow pan. Sprinkle sugar over the fruit (see specific fruit for amount). Mix gently with a large spoon until the sugar dissolves and juice is drawn out. Pack in containers, allowing the headspace recommended for syrup-packed fruit.

Unsweetened pack. Pack prepared fruit into containers without liquid or sweetening, or cover with water containing 1 teaspoon ascorbic acid per quart of water. Non-nutritive sweeteners, if available, may be added to the water to provide sweetness to a sugar-sweetened syrup. Fruit also may be sweetened at the time of serving.

Soft fruits may be packed in their own juice by crushing the fruit lightly to produce juice. For

firmer fruits puree a small amount of the fruit to obtain enough juice to cover.

Pack foods tightly to cut down on the amount of air in the package. Press out as much air as possible for fruits packed in bags. Allow ½-inch headspace for fruits packed without juice or liquid. For fruits packed in juice or liquid, allow headspace recommended for syrup packs.

Tray pack. Spread small, whole fruits, such as strawberries, raspberries, blueberries and sweet cherries, in a single layer on shallow trays and freeze; then remove and quickly package in labeled freezer bags or containers removing as much air as possible from containers and allowing no headspace. Seal and return promptly to freezer.

Sealing, Labeling and Storing

Before closing, make sure sealing edges are free of moisture or food. Place a small piece of crumpled parchment paper or other water-resistant wrapping material between the fruit and the lid of juice of liquid-packed fruits to help keep the fruit submerged in the liquid. Close and carefully seal the container. Label packages plainly. Include name of food, date and type of pack.

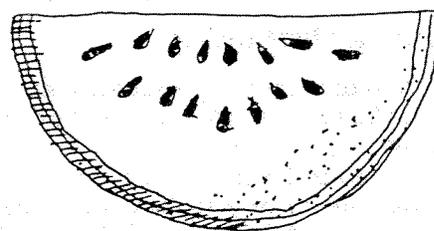
Freeze packaged fruits as quickly as possible at 0° F or below. For quickest freezing, place packages against freezing plates or coils in single layers and freeze no more food at one time than will freeze within 24 hours.

Most fruits maintain high quality for 8 to 12 months at 0° F or below; citrus fruits and citrus juices, for 4 to 6 months. Unsweetened fruits lose quality faster than those packed in sugar or syrup. Longer storage will not make the food unfit for use, but may impair its quality. It is a good idea to post a list of the frozen foods with freezing dates near the freezer and check the packages off the list as they are removed.

Table 1: Master sugar syrup recipes.

Type of syrup (% syrup)	Sugar (cups)	Water (cups)	Approx. yield of syrup (cups)	Calorie content per 2/3 cup
10	¾	6½	6½	55
20	1½	5¾	6½	108
30	2¼	5¼	6½	162
40	3¼	5	6½	235
50	4¼	4¼	6½	306

Dissolve sugar in cold or hot water. If hot water is used, cool syrup before using. Syrup may be made the day before and kept covered in the refrigerator. Up to one-fourth of the sugar may be replaced, amount for amount, with corn syrup or honey.



References

Home Freezing of Fruits and Vegetables, Home and Garden Bulletin 10, U.S. Department of Agriculture, 1971.

Home Freezing, Mary Frances Sowers, Bulletin C-3401, Oklahoma State University Extension Service, Stillwater, Okla.

Home Freezing of Fruits, Charlotte M. Dunn, Circular B-1138, University of Wisconsin Extension Service, Madison, Wis., 1975.

Fruit Freezing Guide

Fruit	Preparation	Type of Pack
Apples	Wash, peel, core and slice into antidarkening solution—3 tablespoons lemon juice per quart of water.	Pack in 30 to 40 percent syrup, adding ½ teaspoon crystalline ascorbic acid per quart of syrup. Or, sprinkle with solution of ¼ teaspoon ascorbic acid dissolved in ¼ cup cold water per quart of fruit; pack dry or with up to ½ cup sugar per quart of apple slices.
Applesauce	Wash, peel if desired, core and slice. Add 1/3 cup water to each quart of apple slices. Cook until tender. Cool and strain.	Sweeten to taste with ¼ to ¾ cup sugar per quart of sauce. Pack into containers.
Apricots	Wash, halve, pit. Peel and slice if desired. If apricots are not peeled, heat in boiling water for ½ minute to keep skins from toughening during freezing. Cool in cold water, drain.	Pack in 40 percent syrup, adding ¾ teaspoon crystalline ascorbic acid per quart of syrup. Or sprinkle with ascorbic acid solution and pack with or without sugar as described for apples.
Avocados	Peel soft, ripe avocados. Cut in half, remove pit, mash pulp.	Add ⅓ teaspoon crystalline ascorbic acid to each quart of puree. Package in recipe-size amounts.
Berries	Select firm, fully-ripe berries. Sort, wash, drain.	Use 30 percent syrup pack, dry unsweetened pack, dry sugar pack—¾ cup sugar per quart of berries—or tray pack.
Cherries (sour or sweet)	Select well-colored, tree-ripened cherries. Stem, sort, wash thoroughly. Drain and pit.	Pack in 30 to 40 percent syrup to which has been added ½ teaspoon ascorbic acid per quart. For pies and other cooked uses, pack in dry sugar using ¾ cup sugar per quart of fruit.
Citrus fruits —sections or slices —juice	Select firm fruit, free of soft spots. Wash and peel. Section fruit, removing all membranes and seeds. Select fruit as directed for sections. Squeeze juice from fruit using squeezer that does not press oil from rind.	Pack in 40 percent syrup or in fruit juice, adding ½ teaspoon ascorbic acid per quart of syrup or juice. Sweeten with 2 tablespoons sugar per quart of juice or pack unsweetened. Add ¾ tsp ascorbic acid per gallon of juice.
Fruit juices (non-citrus)	Select fully ripe fruit. Crush. Heat slightly until juice flows from pulp. Strain through cloth bag.	Add sugar to taste—approximately ¼ cup per quart. Pour into containers and/or ice cube trays and freeze. Remove cubes from trays and store in freezer bags.
Grapes	Select firm, ripe grapes. Wash and stem. Leave seedless grapes whole. Cut grapes with seeds in half and remove seeds.	Pack in 20 percent syrup or pack without sugar using dry pack for halved grapes and tray pack for whole grapes.
Melons (cantaloupe, honeydew, watermelon)	Select firm-fleshed, well-colored, ripe melons. Cut.	Pack in 30 percent syrup or pack dry using no sugar. Pulp also may be crushed (except watermelon), adding 1 tablespoon sugar per quart and freezing in recipe-size containers.
Peaches or nectarines	Select firm, ripe fruit. Sort, wash, pit and peel. Cut in halves, quarters or slices into antidarkening solution—3 tablespoons lemon juice per quart of water.	Pack in 30 to 40 percent syrup, adding ½ teaspoon crystalline ascorbic acid per quart syrup. Or, sprinkle each quart of fruit with solution of ¼ teaspoon ascorbic acid dissolved in ¼ cup cold water, add up to 2/3 cup sugar, mix well and pack in containers. May also be packed in cold water containing 1 teaspoon ascorbic acid per quart of water.
Pears	Select firm, well-ripened fruit. Wash, peel, core; cut in halves or slices. Heat in boiling 40 percent syrup 1 to 2 minutes, depending on size of pieces. Drain and cool.	Pack in cold 30 to 40 percent syrup, adding ¾ teaspoon ascorbic acid to each quart of syrup, if desired.
Plums and prunes	Select firm, deep-colored fruit. Sort and wash. Leave whole or cut in halves or quarters.	Pack in 40 percent syrup, adding ½ teaspoon ascorbic acid per quart of syrup. Or, pack whole fruit into containers without sugar or syrup.
Rhubarb	Select firm, tender, well-colored stalks. Wash, trim and cut into 1 to 2 inch pieces. Heat in boiling water 1 minute and cool promptly in cool water to help retain color and flavor, if desired.	Pack tightly into containers without sugar or with 40 percent syrup.