



## FREEZING FRUIT

### Ways to Pack Fruit

**Unsweetened** – fruit in containers without sugar.

**Sugar Pack** – for juicy fruits and those that do not darken. One quart of fruit with ¼ to 1 cup sugar (depending on personal taste).

**Syrup Pack** – whole fruits and those that tend to darken. Mix and dissolve sugar in water; add ascorbic acid if needed

#### Proportions for Syrup

Kind (% sugar syrup)	Sugar per 1 quart water
Light (30%)	2 cups
Medium (35%)	2-1/2 cups
Medium (40%)	3 cups
Heavy (50%)	4-3/4 cups

Depending on the kind of fruit, ascorbic acid may be added to syrup to prevent darkening:

Crystalline – ½ tsp. Per quart syrup

Tablets – 1500 milligrams per quart syrup

**Loose or Tray Pack** – Spread fruits in single layer on tray; freeze, pack. Light sugar coating may be beneficial to juicy fruits.

**Additional information – non-sugar sweeteners** are not recommended in home food preservation. Freeze foods with water, juice, or very thin sugar solution and add artificial sweetener, if desired for flavor at time of serving. **Honey** – use a mild flavored variety to avoid masking natural flavor of fruit. Use sparingly.

### Packages for Fruits and Vegetables

**Rigid plastic boxes** – available in pints, 1-1/2 pints, quarts, and larger sizes. Check lids for tight fit or use freezer tape. Leave ½” head space. **Plastic bag and box combination** – If bags are used without boxes, double bagging is necessary. Also double bag when freezing large amounts of loose pack foods. **Glass freezer jars** – specially tapered jars for ease in removing food and tempered to withstand wide temperature range.

#### Approximate Amount of Fruit Needed to Yield 1 Pint of Frozen Fruit

Apples (1-1/2 pounds)	Apricots (2/3 to 4/5 pound)	Berries (1-1/2 pounds)
Cantaloupes (1 pound)	Cherries (1-1/2 pounds)	Cranberries (1/2 pound)
Currants (3/4 pound)	Peaches (1-1/2 pounds)	Pears (1-1/2 pounds)
Pineapple (1-1/4 pounds)	Plums or Prunes (1-1/2 pounds)	Raspberries (1 pint)
Rhubarb (2/3 to 1 pound)	Strawberries (2/3 quart)	

The following table “Fruits: How to Prepare and Pack for Freezer Storage” was Reprinted by permission from *How to Prepare Fruits and Vegetables for Freezing*, Frances O. Van Duyne and Mary Keith, University of Illinois Extension, College of Agricultural, Consumer and Environmental Sciences. Copyright 1983. Board of Trustees, University of Illinois.

## Freezing Basics

Freezing is the easiest, most convenient, and least time-consuming method of preserving foods. Freezing does not sterilize foods or destroy the organisms that cause spoilage; the extreme cold simply slows the growth of microorganisms and the chemical changes that affect quality or cause spoilage.

Enzymes are complex proteins, present in all living tissue, that help organisms ripen and mature. During freezing, enzyme action is slowed but not stopped. If not inactivated, these enzymes can cause color and flavor changes and loss of nutrients during freezing storage.

Blanching vegetables before freezing inactivates the enzymes. During blanching, the vegetable is exposed to boiling water or steam for a brief period of time. The vegetable is then rapidly cooled in ice water to prevent cooking. The use of microwave ovens for blanching has become popular. However, microwave blanching produces uneven results because of varied heat patterns within an oven and from one oven to another. Microwave blanching requires working with only small quantities at a time; there is no time saving when working with large quantities of vegetables.

Blanching also helps destroy microorganisms on the surface of the vegetables. When blanched, vegetables such as broccoli and spinach become more compact. Following the recommended times for blanching each vegetable is important. Overblanching results in a cooked product and loss of flavor, color, and nutrients. Underblanching stimulates enzyme activity and is worse than no blanching at all.

Enzymes in fruits can cause browning and loss of Vitamin C. Fruits, however, are not usually blanched. Instead, ascorbic acid (Vitamin C) is used to control enzymes in frozen fruits. Commercial mixtures of ascorbic acid are available for home use. Citric acid or lemon juice also may be used to prevent darkening of fruits, but they are not as effective as ascorbic acid. Packing fruit in sugar or sugar syrup also will control browning.

### Freezer Storage

To maintain top quality, store frozen fruits and vegetables at 0 degrees Fahrenheit (F) or lower. Storing frozen foods at temperatures higher than 0 degrees F increases the rate of deterioration and shortens the shelf life of foods. Fluctuating freezer temperatures can cause the ice in foods to thaw slightly and then refreeze. Every time this happens, the smaller ice crystals form larger ones, further damaging cells and creating a mushier product.

Moisture loss, or ice crystals evaporating from the surface of a product, produces freezer burn – a grainy, brownish spot where the tissues become dry and tough. Freezer-burned food is likely to develop off flavors, but it will not cause illness. Packaging in heavyweight, moisture-resistant wrap will prevent freezer burn.

### Containers for Freezing

Foods for the freezer must have proper packaging materials to protect their flavor, color, moisture content, and nutritive value. Select packaging materials with these characteristics:

- Moisture and vapor resistant
- Durable and leakproof
- Resistant to oil, grease and water
- Not susceptible to becoming brittle and cracking at low temperatures
- Able to protect foods from absorbing other flavors or odors
- Easy to seal
- Easy to label

Suitable packaging materials include rigid plastic containers with straight sides, glass jars made for freezing and canning, heavy-duty aluminum foil, moisture-vapor resistant bags, and paper.

Containers intended for short-term storage, such as bread wrap; cottage cheese, milk, or ice cream cartons; regular aluminum foil; or waxed paper do not provide effective protection against flavor and moisture loss or freezer burn during long-term storage.

Plastic containers designed for long-term freezer storage may or may not be suitable for direct use in a microwave oven.

### **Packaging Foods**

Cool all foods and syrup before packing. Pack foods in quantities that are usable for a single meal.

Pack cold foods tightly into containers. Because most foods expand on freezing, allow ample headspace (space between food and closure). The amount of space needed will vary depending on the food and size of containers. When packing food in bags, press out excess air before sealing. Label and date each package. It is also helpful to list number of servings on the label.

For quick freezing, spread packages among already frozen foods. Leave a small space between packages and add only the amount of unfrozen food to the freezer that will freeze within 24 hours, about 2 to 3 pounds of food to each cubic foot of freezer capacity.

### **Freezing Pointers**

1. Freeze food at 0 degrees F or lower. To freeze foods rapidly, set the temperature control at -10 degrees F or lower 24 hours in advance.
2. Freeze foods when they are packaged and sealed.
3. Do not overload your freezer with unfrozen food. Overloading slows down the freezing rate, and foods that freeze too slowly may lose quality.
4. Place packages in contact with refrigerated surfaces in the coldest part of the freezer.
5. Leave a little space between packages so air can circulate freely. Then, when the food is frozen, store the packages close together.

### **What to Do If Your Freezer Stops**

Keep the freezer closed. If it looks like the freezer will be stopped or more than 24 hours, use dry ice (if you can get it) or move the food to another freezer. Thawed fruits that smell and taste good can be refrozen. Thawed fruits can be used in cooking, baking, or making jams and jellies. Vegetables containing ice crystals or at 40 degrees F or below can be refrozen. Thawed vegetables in good condition can be cooked in soups, stews, or casseroles and then frozen.

Examine meats and poultry for color changes or off odors. Only refreeze packages that still contain ice crystals or are cold to touch (40 degrees F or below). Repackage in moisture and vapor-proof wrap. Discard any thawed meat or poultry. Ground meat cold to touch should be cooked before refreezing.

### **Recommended Books on Freezing**

*Ball Blue Book* (Vol. 1) (1995). Ball/Alltrista Corporation. Muncie, Indiana.

*Kerr Home Canning and Freezing Guide* (1996). Published by Kerr Glass Manufacturing Corporation, P.O. Box 76961, Los Angeles, California 90067.

*So Easy to Preserve* (Third Ed.) (1993). Cooperative Extension Service, University of Georgia, College of Agriculture, Athens, Georgia.

### **References**

*Your Freezer Stopped!* Nancy Layman and Sharon L. Mader, County Extension Agents, Home Economics, Cooperative Extension Service, the Ohio State University.

*So Easy to Preserve* (Third Ed.) (1993). Cooperative Extension Service, University of Georgia, College of Agriculture, Athens, Georgia.

## FRUITS: How to Prepare and Pack for Freezer Storage

FRUIT	PREPARATION	TYPE OF PACK
<b>Apples, slices</b>	Select firm, ripe, tart fruit. Wash, core, peel, and slice syrup in 16 <sup>th</sup> .	Cover with 40% syrup.
	Or do as indicated above and then blanch slices in steam for 3 minutes.	Pack plain or cover with 40% syrup.
<b>Apples, as sauce</b>	Core, peel, and cut into 8ths. Simmer with water until soft. Put through sieve.	Add sugar to taste.
<b>Apricots</b>	Use fully ripe but not soft apricots. Peel, halve, and pit.	Cover with 40 to 50% syrup.
<b>Blackberries and dewberries</b>	Choose fully ripened, uniform berries. Wash and sort.	Cover with 40% syrup or add ½ C sugar to 1 qt. fruit as dry pack.
<b>Blueberries</b>	Use large ripe berries. Wash thoroughly and discard any that are soft.	Pack plain or cover with 30% syrup or dry pack as for blackberries.
<b>Cantaloupe</b>	Select firm, ripe fruit. Remove seeds and rind. Cut into small wedges.	Cover with 40% syrup.
<b>Cherries, sweet</b>	Use firm, ripe fruit. Wash and remove stems.	Cover with 40% syrup.
<b>Cherries, sour</b>	Use firm, ripe fruit. Wash, remove stems and pits.	Mix 1 C sugar with 3 C cherries.
<b>Cranberries</b>	Choose bright, shiny, firm berries. Wash thoroughly and sort.	Pack plain or cover with 50% syrup.
<b>Gooseberries</b>	Select green or ripe berries. Wash, and remove stems.	Cover with 60% syrup.
<b>Grapefruit</b>	Use firm, well-shaped fruit which is heavy for its size. Peel, separate sections, and carefully remove the membranes.	Cover white sections with 40% syrup; cover pink with 30% syrup. Juice may be used in making syrup.
<b>Grapes, seedless</b>	Discard any soft or bruised fruit. Wash, and remove stems.	Cover with 40% syrup.
<b>Grapes, seeded</b>	Sort carefully and discard any soft fruit. Wash, and remove stems. Cut in halves and remove pits.	Cover with 40% syrup.
<b>Honeydew melon</b>	Select firm, ripe fruit. Remove seeds and rind. Cut into small wedges.	Cover with 40% syrup.

<b>Peaches</b>	Use only firm, ripe fruit. Peel and slice enough for one carton at a time. Pack and cover with syrup immediately.	Cover with 50 to 60% syrup or dry pack.
<b>Pineapple</b>	Use ripe fruit. Slice, pare, remove core, and cut into wedges.	Cover with 30 to 40% syrup or dry pack.
<b>Plums, prune</b>	Choose ripe, unbruised fruit. Wash, halve, and remove pits.	Cover with 30% syrup.
<b>Plums, red</b>	Select ripe fruit without any soft spots. Halve, remove pits, and then quarter.	Cover with 50% syrup.
<b>Raspberries</b>	Choose ripe, juicy berries (purple or red raspberries are better than black). Sort and wash.	Pack plain; or (better) mix 1 C sugar with 5 C fruit; or (best) cover with 30 to 40% syrup.
<b>Strawberries, whole</b>	Select firm, ripe berries. Wash and hull.	Cover with 40% syrup.
<b>Strawberries, sliced or crushed</b>	Prepare in same way as for whole berries. Then slice or crush.	Mix 1 C sugar with 5 C sliced or crushed fruit.
<b>Water melon</b>	Choose firm, ripe fruit. Remove seeds and rind. Cut into small wedges.	Cover with 30% syrup.

**C = cup**