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FREEZING FRUITS, STEP BY STEP

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Harvested, fresh fruits continue to undergo chemical changes that can cause spoilage and deterioration of the product. This is why these products should be frozen as soon after harvest as possible and at their peak degree of ripeness.

Many fresh fruits, including peaches, apples, pears, plums, nectarines and sweet cherries will darken if their cut surfaces are exposed to air. This darkening will continue in the freezer if an anti-darkening treatment is not used. Because fruits are usually served raw, they are not blanched like vegetables. Ascorbic acid (vitamin C) may be added to packing liquids or sprinkled on cut fruit surfaces to prevent darkening. Ascorbic acid is available at drug stores and is the major active ingredient in commercial anti-darkening preparations such as Fruit Fresh™.

Other methods to control browning include soaking the fruit in dilute vinegar solutions or coating the fruit with sugar and lemon juice. However, these latter methods do not prevent browning as effectively as treatment with ascorbic acid. Apples and rhubarb may be cooked to prevent browning.

Rancid oxidative flavors may develop through contact of the frozen product with air. This problem can be prevented by using a wrapping material that does not permit air to pass into the product and by removing as much air as possible from the freezer bag or container before freezing.

Step-By-Step Instructions

1. Gather the necessary materials

- Get all of the equipment you will need and be sure each piece is clean.
- Sort fruit to remove damaged, overripe or underripe fruit. Wash fruit gently, lifting it out of the water to leave dirt in sink or bowl. Do not allow fruit to soak in water for a long period of time. Do not wash blueberries before freezing.
- Make syrup or sugar mixture, if needed. Generally, ½ teaspoon of ascorbic acid added to each quart of packing syrup, 1 teaspoon of ascorbic acid added to each quart of unsweetened packing water, or ½ teaspoon of ascorbic acid added to each pound of sugar will prevent darkening. If you use a commercial mixture, follow the manufacturer's instructions. Table 3 gives recipes for syrups used in packing fruits.
- If you are freezing unsweetened packs of fruits that will darken, be sure to have powdered ascorbic acid or a commercial anti-darkening agent to sprinkle on fruit before freezing.

2. Prepare fruit for one container at a time. Follow directions for individual fruits in Table 2.

3. Pack fruit for freezer. Most fruits have better texture if they are packed in sugar or syrup, however sugar is not required for preservation. Some fruits, including blueberries, cranberries, currants, figs, gooseberries, raspberries, rhubarb and steamed apples yield high-quality packs without sugar.

Your selection of the way to pack the fruit will also depend on the intended use. Fruits packed in syrup are generally best for uncooked desserts; those packed in dry sugar or unsweetened are best for most cooking purposes because there is less liquid in the product.

Artificial sweeteners — like saccharin or aspartame — may give fruits a sweet flavor but do not furnish the beneficial effects of sugar, such as color protection and thickness of syrup. Artificial sweeteners can be added just before serving.

- Syrup Pack — See Table 3 for recommended concentrations. Pack fruit into freezer container, leaving ½- to 1-inch headspace. Cover fruit with syrup. To keep fruit under syrup, place a small piece of crumpled waxed paper on top and press fruit down into liquid.
- Sugar Pack — Cut fruit into a bowl or shallow pan. Sprinkle the sugar (with ascorbic acid or other anti-darkening mixture) over the fruit. Mix gently with a large, long-handled spoon until juice is drawn out and sugar is dissolved. Put fruit and juice in containers, leaving ½- to 1-inch headspace.
- Dry Pack — The dry pack is good for small whole fruits such as berries, which give a good quality product without sugar. Simply pack the fruit into a container, seal and freeze. Or freeze individual berries or melon balls on waxed paper-lined trays and package them in containers as soon as they are frozen, to prevent freezer burn.
- Other Unsweetened Packs — Pack prepared fruit into containers and cover with water containing ascorbic acid. Or pack crushed or sliced fruit in its own juice, mixing in 1 teaspoon of ascorbic acid per quart of fruit, if necessary. Unsweetened packs will yield a product without the plump texture and good color of those packed with sugar.

4. Seal containers.

- To remove air from plastic containers, seal container, then lift one corner of the lid pressing down the center of the lid. Reseal.
- If you use freezer bags for a liquid pack, fill them to within 3 inches of the top. If not using zipper lock freezer bags, seal by twisting the top of the bag where the food ends. Double the twisted top back and close it with a rubber band or metal tie about ½ inch from the food to allow food to expand.
- If you use freezer bags for dry pack, fill them to within 3 inches of the top. Lower filled bag into a container of cold water, but do not allow water to get into container; this will remove much of the air from the container. Seal as explained above for a liquid pack in freezer bags.

5. Label each container with name of product & date package. Use the fruit within eight to twelve months for best quality. Unsweetened fruits lose quality faster than fruits packed in sugar or syrups.

Table 1. Approximate Processed Yields for Fruits & Fruit Products

Fruit	Quarts of fruit yielded per bushel	Pints of fruit yielded per bushel	Pounds of fruit needed for 1 quart
Apples	16-20	32-40	2½-3
Applesauce	15-18	30-36	2½-3½
Berries, except strawberries	*	*	3-6
Cherries	22-32	44-64	2-2½
Figs	*	*	1½-2
Melons	*	*	1 large

Peaches, nectarines	18-24	36-48	2-3
Pears	20-25	40-50	2-3
Plums, prunes	24-30	48-60	1½-2½
Rhubarb	*	*	1½-3
Strawberries	*	*	2 pints
*Not generally measured or sold in bushels			

Table 2. Guide to Preparing Fruits for Freezing*

Fruit	Preparation	Recommended packs
Apples	Pare and core apples; cut medium apples into twelfths and large apples into sixteenths. Steam apple slices for five minutes or use anti-darkening agent.	Sugar pack for pies: Mix ½ cup sugar per quart of apples. Syrup pack for uncooked desserts: Use medium syrup.
Blackberries or dewberries	Select fully ripe, firm berries. Wash carefully in cold water, discarding soft, underripe or defective fruit.	Sugar pack: ¾ cup sugar per quart of berries. Dry pack: Pack into containers or freeze first on tray and pack. Syrup pack: Medium to heavy
Blueberries or huckleberries	Select full-flavored, ripe berries. Remove leaves, stems and immature or defective berries. Do not wash blueberries to be packed whole; washing results in a tougher-skinned product. Wash before using.	Pack berries into containers, leaving headspace, or freeze first on a tray and then pack.
Cherries	Select bright, fully ripened cherries. Wash, stem and pit. Sweet cherries need anti-darkening agent.	Syrup pack: Use medium syrup for sweet cherries, heavy syrup for sour cherries. Sugar pack: ¾ cup sugar per quart sour cherries.
Cranberries	Choose firm, deep-red berries with glossy skins. Stem and sort. Wash and drain.	Syrup pack: Use heavy syrup. Dry pack: Pack into containers or freeze first on a tray and then pack.
Figs	Select fully ripe fruit. Cut off stems, wash and peel if desired. Slice or leave whole. Use anti-darkening agent.	Syrup pack: Use medium syrup. Add ¾ teaspoon (2250 mg) ascorbic acid or ½ cup lemon juice per quart of syrup. Dry pack: Dissolve ¾ teaspoon ascorbic acid in 3 tablespoons cold water and sprinkle over 1 quart figs. May be frozen first on a tray and then packed.
Grapes	Use fully ripe, firm, sweet grapes. Sort, stem and wash. Leave seedless grapes whole; cut grapes with seeds in half and remove seeds.	Syrup pack: Use medium syrup.
Melons**	Cut in slices, cubes or balls. Need anti-darkening agent.	Syrup pack: Use light syrup. Dry pack: See directions on page 2.

Peaches, nectarines	Select well-ripened fruit and handle carefully to avoid bruising. Sort, wash, pit and peel peaches; cut medium peaches into twelfths and large peaches into sixteenths. Need anti-darkening agent.	Sugar pack: Sprinkle ¼ teaspoon (750 mg) ascorbic acid in 3 tablespoons cold water to each quart of prepared fruit. Add $^{2}/3$ cup sugar per quart of fruit; mix well. Stir gently until sugar dissolves or let stand 15 minutes. Syrup pack: Use medium syrup. Add ½ teaspoon (1500 mg) ascorbic acid per quart of syrup.
Pears	Select full-flavored pears that are crisp and firm, not mealy in texture. Wash, peel, core and cut into sections. Heat pears in boiling syrup for 1 to 2 minutes, depending on size. Drain and cool. Need anti-darkening agent.	Syrup pack: Use medium syrup. Add ¾ teaspoon (2250 mg) ascorbic acid to a quart of cold syrup and use to cover pears in freezer containers.

Table 2. Guide to Preparing Fruits for Freezing*

Fruit	Preparation	Recommended packs
Plums	Select firm, ripe fruit soft enough to yield to slight pressure. Sort, wash, peel, core and cut into sections. Need anti-darkening agent.	Syrup pack: Add ½ teaspoon (1500 mg) ascorbic acid per quart of medium to heavy cold syrup (depending on tartness of plums).
Rhubarb	Choose firm, tender, well-colored stalks with good flavor and few fibers. Wash, trim and cut into lengths to fit the package. Heat in boiling water for 1 minute, and cool promptly in cold water to help retain color and flavor.	Syrup pack: Use medium syrup. Dry pack: See directions on page 2.
Strawberries	Select fully ripe, firm berries with a deep red color. Discard immature and defective fruit. Wash and remove caps.	Syrup pack: Put whole berries in containers and cover with cold, heavy syrup. Sugar pack: Add ¾ cup sugar per quart of whole, sliced or crushed berries; mix thoroughly. Stir until most of the sugar is dissolved or let stand for 15 minutes.

*Fruits containing syrup or other liquid expand during freezing. Leave ½- to 1-inch headspace for these fruits.

**Melons do no freeze well. Use while partially frozen.

Table 3. Syrups for Processed Fruits

Syrup	Sugar[1] (cups)	Water (cups)	Ascorbic acid[2] (teaspoons)	Yield (cups)	Uses
Light (30%)	2	4	¾	5	Small, soft fruits
Medium (40%)	3	4	¾	5½	Peaches, apples, pears, sour berries
Heavy (50%)	4¾	4	¾	6½	Sour fruits

[1]Light corn syrup or light, mild-flavored honey can replace ½ of the sugar.

[2]Add to cold syrup, if you are preserving peaches, apples, pears, plums, nectarines or sweet cherries. If you use a commercial mixture, follow the manufacturer's instructions.

Note: To make syrup: Dissolve sugar in water. Refrigerate syrup until you use it. You will need approximately 1 to 1½ cup(s) syrup for each quart of fruit.

For more information on freezing fruits, request **HGIC 3060, *Freezing Basics*** and **HGIC 3063, *Freezing Fruits & Vegetables***

If this document didn't answer your questions, please contact HGIC at **hgic@clemson.edu** or 1-888-656-9988.

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