

630.71  
6-3el  
no. 688  
Rev. 54  
6.3

OREGON STATE LIBRARY  
Documents Section

JUL 26 1954

# Freezing

## Preservation of FRUITS AND VEGETABLES

By Lois Sather and E. H. Wiegand  
Food Technology Department

### CALENDAR FOR FREEZING FOODS

**Spring**—March, April, May

Gooseberries, Rhubarb, Strawberries,  
Asparagus, Peas, Spinach, Greens.

**Summer**—June, July, August

Apricots, Cherries, Figs, Blueberries, Goose-  
berries, Strawberries, Cane Berries, Beans,  
Beets, Peas, and Summer Squash.

**Fall**—September, October

Cantaloupe, Cranberries, Grapes, Peaches,  
Prunes, Beans, Beets, Broccoli, Brussels  
Sprouts, Carrots, Cauliflower, Corn, Pep-  
pers, Squash, and Pumpkin.

**Winter**—November, December

Apples, Cranberries, Cauliflower, Broccoli,  
and Winter vegetables.

Extension Bulletin 688

Revised June 1954

Federal Cooperative Extension Service  
Oregon State College      Corvallis

Cooperative Extension Work in Agriculture and Home Economics, F. E. Price, director.  
Oregon State College and the United States Department of Agriculture cooperating.  
Printed and distributed in furtherance of Acts of Congress of May 8 and June 30, 1914.



## FRUITS

**Freeze and store at 0° F. or lower.**

See inside pages for general instructions.  
For sugar and sirup preparation see page 4.

NAME AND VARIETIES	PREPARATION
<b>APPLES</b> Gravensteins and firm winter varieties, white or yellow flesh, such as Yellow Newtown, Winesap, Spitzenburg, Jonathan.	Peel, core and trim. Slice into light brine (1 tablespoon of salt per quart of water). Drain, pack, cover with sirup. Ascorbic acid optional—see page 4. Prepared sauce may also be frozen.
<b>APRICOTS</b> Royal, Blenheim, Tilton, Wenatchee Moorpark.	Sort, wash, halve and pit. Dip in boiling water or sirup 1 minute to prevent discoloration, air cool immediately, or add ascorbic acid to sirup (see page 4). Pack, cover with sirup.
<b>BLACKBERRIES</b> Pacific Northwest Native Wild, Cascade, Pacific, Chehalem, Himalaya, Evergreen, Olallie.	Sort carefully, wash, drain, and pack, then cover with sirup. May be packed dry with nothing added for use in pie or jam.
<b>BLUEBERRIES AND HUCKLEBERRIES</b> Native Wild Blue and Red, June, Concord, Jersey, Rubel, Dixi, Pemberton.	Sort carefully, wash well to remove all foreign matter. Drain and pack; cover with sirup. May be packed dry with nothing added for use in pie or jam. On native wild berries, a 1 minute blanch is desirable to soften skins. Cool quickly, drain, pack as desired.
<b>BOYSENBERRIES (NECTAR) AND YOUNGBERRIES</b>	Sort and wash carefully. Drain and pack; cover with sirup.
<b>*CANTALOUPE</b> Any well-flavored variety with thick, firm, well-colored flesh.	Cut balls, dice or slice from portion of fruit that is firm-ripe. Pack, covering with light sirup.
<b>CHERRIES—SOUR</b> Montmorency, Early Richmond, English Morello.	Wash, sort, and pit. Soaking in cold water for 2 hours aids pitting. Mix with sugar; package.
<b>CHERRIES—SWEET</b> Lambert, Bing, Deacon, Royal Ann, Republican.	Stem and wash. Pitting not necessary but desirable. Drain, pack, cover with sirup. Ascorbic acid optional—see page 4.
<b>CRANBERRIES</b> McFarlin, Howes, Stankovich.	Sort carefully, wash, and drain. Pack and cover with sirup, or pack dry with nothing added.
<b>CURRENTS</b> Perfection, Fay's Prolific, Cherry, Red Lake.	Sort carefully, wash and drain. Pack and cover with sirup, or mix with sugar and then package. May be packed dry with nothing added.
<b>FIGS</b> Mission, Kadota, Gillette, Granata, Lattarula, Black Spanish.	Stem, wash, and sort. Peel, halve, or slice; or leave whole unpeeled. Pack and cover with light sirup. Ascorbic acid optional—see page 4.
<b>GOOSEBERRIES</b>	Stem, wash, sort, drain. Pack dry with nothing added.
<b>GRAPES</b> Thompson Seedless, Worden, Campbell's Early, Concord.	Wash, sort carefully, and drain. Pack and cover with light sirup, or pack dry with nothing added. (Will be somewhat soft if completely thawed before using).
<b>LOGANBERRIES</b>	Sort, wash well, drain. Pack, cover with sirup.
<b>PEACHES</b> Elberta, Halehaven, Rio Oso Gem, Veteran, Triogem, Slappey, J. H. Hale.	Halve, pit, scald until skin slips, and peel. Either (1) dip slices into boiling water or sirup 1 minute to prevent discoloration, air cool, or (2) add ascorbic acid to the sirup—see page 4. Pack and cover with sirup.
<b>PRUNES</b> Italian.	Sort, wash, halve and pit. Pack and cover with sirup. Ascorbic acid optional—see page 4.
<b>RASPBERRIES—BLACK</b> Dundee, Munger, Bristol, Plum Farmer, Winfield.	Sort, wash, and drain well. Pack and cover with sirup. May be packed dry with nothing added for use in jam.
<b>RASPBERRIES—RED</b> Cuthbert, Canby, Washington, Newburgh, Willamette.	Sort, wash carefully, and drain. Pack and cover with sirup, or mix gently with sugar and then package.
<b>*RHUBARB</b> Canada Red, Valentine, McDonald.	Wash, trim, cut into ½-inch pieces. Drain, pack and cover with sirup. May be packed dry with nothing added for use in pie or preserves. Prepared sauce may also be frozen.
<b>STRAWBERRIES</b> Marshall, Corvallis, Northwest, Brightmore.	Sort, cap, wash, and drain well. Slicing is recommended. May be packed whole if desired. Pack whole berries and cover with sirup, or mix sliced berries with sugar and then package.
<b>FRUIT JUICES</b> Grape and berry.	Use only mature fruit. Sort and wash. Place in preserving kettle with small amount of water. Simmer 10 minutes. Do not boil. Drain in jelly bag. Add sugar—approximately 1 cup sugar to 3 to 5 cups juice as desired. Pack in liquid tight containers, ¾ full.

\* Vegetable used as a fruit.



# VEGETABLES

Freeze and store at 0° F. or lower.

See inside pages for general instructions  
and blanching procedure.

NAME AND VARIETIES	PREPARATION
<b>ASPARAGUS</b> Mary Washington, Paradise, California 500.	Sort, wash carefully, and trim. Cut stalks in 1-inch pieces, or leave whole. <b>BLANCH:</b> 2 to 4 minutes depending on thickness of stalk. Cool quickly, drain, and pack.
<b>BEANS—GREEN OR WAX</b> Blue Lake strains, Tendergreen, Refugee, Stringless Green Pod, Wade, Processor, Columbia, Kentucky Wonder, Round Pod Kidney Wax.	Sort, snip, wash carefully, cut as desired. <b>BLANCH:</b> 3 to 4 minutes. Cool quickly, drain and pack.
<b>BEANS—LIMA</b> Henderson's Bush, Fordhook 242, Clark's Bush, Early Thorogreen.	Sort and wash beans carefully. Pack white and green beans separately. <b>BLANCH:</b> 2 to 3 minutes. Cool quickly, drain and pack.
<b>BEETS</b> Detroit Dark Red, Early Model.	Remove tops, then wash beets. Cook until tender. Cool quickly and peel. Slice or dice as desired, pack.
<b>BROCCOLI—GREEN</b> Calabrese, Waltham 29, Italian Green Sprouting.	Sort carefully. Trim off large leaves and woody stem ends. Split stalks to $\frac{1}{2}$ -inch thickness, flowerets to 1-inch thickness. Wash thoroughly. <b>BLANCH:</b> 3 to 4 minutes. Cool quickly, drain and pack.
<b>BRUSSELS SPROUTS</b> Long Island Improved, Catskill, Oregon Special.	Sort, trim carefully and wash. <b>BLANCH:</b> 3 to 4 minutes. Cool quickly, drain and pack.
<b>CARROTS</b> Red Cored Chantenay, Nantes.	Use only young tender carrots. Wash and scrape well. Small carrots may be left whole. Slice or dice others. <b>BLANCH:</b> 3 to 5 minutes for small, whole carrots; 2 to 3 minutes for diced or sliced. Cool quickly, drain and pack.
<b>CAULIFLOWER</b> Snowball 16, St. Valentine, Snowball X, Y, or E; Super Snowball.	Sort, trim and wash thoroughly. Split stalks to $\frac{1}{2}$ -inch thickness, flowerets to 1-inch thickness. <b>BLANCH:</b> 3 to 4 minutes. Cool quickly, drain and pack.
<b>CORN—CUT or ON-THE-COB</b> Carmelcross, Seneca Golden, Tendermost, Prosperity, Golden Cross Bantam. Many other popular varieties freeze with good results.	Use only ears with milky, sweet juice. Husk, silk, and wash. <b>WHOLE-KERNEL or CREAM-STYLE</b> <b>BLANCH:</b> 4 to 5 minutes. Cool thoroughly—at least 1 to 2 times as long as blanch. Drain, cut off cob, pack and freeze immediately. <b>CORN ON THE COB</b> <b>BLANCH:</b> 8 to 10 minutes. Cool thoroughly, drain and package. Wrap each ear separately in locker wrap; or tightly pack desired amount together in large freezer bags or containers.
<b>MUSHROOMS</b> Use of wild mushrooms is not safe unless you know <i>positively</i> that they are <i>edible</i> species.	Use only fresh, young mushrooms free from spots or decay. Wash thoroughly, trim stem end. Cut into small uniform pieces. Heat in fry pan until brown, at least 3 minutes, or until tender. Cool in pan in cold water, then package. Or— <b>BLANCH:</b> 3 minutes. Adding lemon juice (3 teaspoons per quart of water) to blanching water prevents darkening. Cool quickly, drain and pack.
<b>PEAS</b> Thomas Laxton, Improved Gradus, Stratagem, Tall Alderman, World's Record, Laxtonian, Laxton's Progress, Perfection.	After shelling, sort out overlarge, hard, starchy, and split peas. Wash well. <b>BLANCH:</b> $1\frac{1}{2}$ to 2 minutes. Cool immediately, drain and pack.
<b>PEPPERS—GREEN</b> Any variety with deep green color and thick, tender flesh. When red may be frozen for use as garnish.	Wash, slice or halve, remove seeds. Blanching is optional; it does soften tissue and aids packing. <b>BLANCH:</b> 2 minutes. Cool quickly, drain and pack.
<b>SPINACH AND OTHER GREENS</b> Improved Thick Leaf, Giant Leaf.	Sort, trim and wash very thoroughly. <b>BLANCH:</b> 2 minutes. Cool quickly, drain well and pack.
<b>SQUASH OR PUMPKIN</b> Any firm-fleshed, mature, well-flavored variety.	Halve, remove seeds, cut into pieces. Steam over water or bake until tender. Sieve or mash, cool and pack with no addition of liquid or salt.
<b>SQUASH—SUMMER</b> Zucchini, Summer Crookneck.	Wash and cut into $\frac{1}{2}$ -inch or thinner slices. <b>BLANCH:</b> 2 minutes. Cool quickly, drain and pack.



## Containers for frozen fruits and vegetables

A good container for frozen foods should be (1) moisture-vapor proof, (2) strong and durable, (3) sturdy enough to maintain a liquid-tight seal, (4) easy to handle and fill, (5) easy to seal, (6) easy to label, (7) economical of storage space (square containers fit together to save space).

Types of containers especially made for frozen foods are plastic boxes, waxed cartons, durable cardboard boxes with inner liners, plastic or moisture-vapor proof cellophane bags, metal cans and glass freezer jars. Other types of jars may be used but may not be as resistant to low temperatures and can break during freezing and storage.

Before closing freezer bags, push or squeeze out as much air as possible. Containers with snap-on lids should be checked after product is frozen to be sure lid has not come loose. Remember—no container will protect your frozen foods properly unless it is tightly sealed to prevent air from entering, or moisture from escaping.

## Sirup pack

The sirup may be prepared from either cane or beet sugar and water. If desired, up to one-third of the sugar may be replaced by corn sirup or honey. What strength sirup to use on any fruit depends on individual preference and the maturity and variety of fruit. Allow approximately  $\frac{3}{4}$  cup of sirup for each pint of fruit;  $1\frac{1}{2}$  cups of sirup for each quart of fruit. Chill sirup well before using.

Strength	Water	Sugar	Yield	Approximate coverage
Light .....	4	2	5 cups	7 pints
Medium .....	4	3	$5\frac{1}{2}$ cups	8 pints
Heavy .....	4	4	$6\frac{1}{4}$ cups	9 pints

## Dry sugar pack

The amount of sugar to add is governed by each family's preference. A common practice is to use either 4 pounds of fruit to 1 pound of sugar (4 : 1) or 3 pounds of fruit to 1 pound of sugar (3 : 1). Sugar and fruit should be gently but thoroughly mixed together until the sugar has dissolved in the juice. Then package.

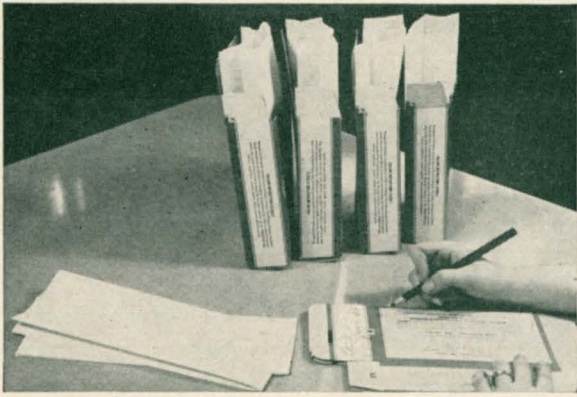
## Ascorbic acid

The darkening of light-colored fruits (apples, apricots, peaches, figs, prunes, and sweet, pitted cherries) is retarded effectively by the addition of ascorbic acid (vitamin C). Ascorbic acid in tablet, powder, or crystal form may be secured from most drug stores, locker plants, or some food stores. Just before using, dissolve ascorbic acid in 2 or 3 tablespoons of cold water, then mix in cool sirup. Allow  $\frac{1}{2}$  teaspoonful of crystal or powder to 1 quart of sirup, this being enough sirup for use on 8 pints or 4 quarts of prepared fruit (150 mg. per pound or pint of fruit). Commercial preparations of ascorbic acid for frozen fruits are on the market. When using these, follow the manufacturer's directions and be sure enough sirup is used to cover fruit.

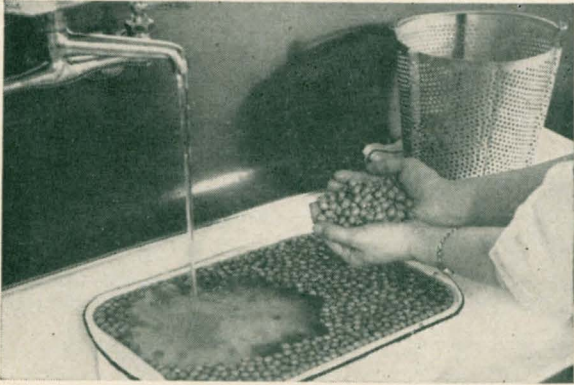


# General Rules for Both Fruits and Vegetables

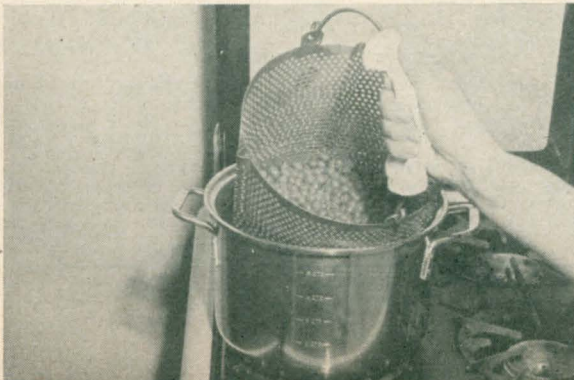
## PEAS



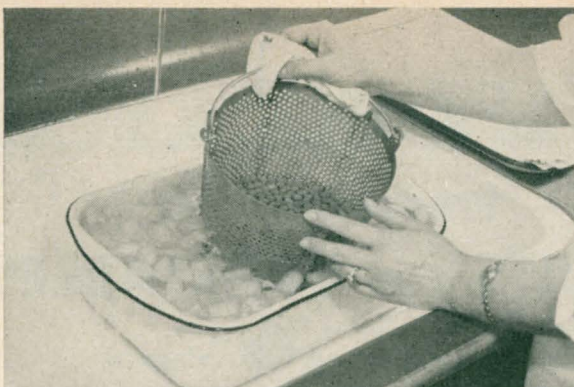
Label cartons with name of product and date.



Wash and sort carefully in cold water. Prepare as for table use.



Blanch in boiling water for required length of time as shown on page 3.



Cool immediately in running water or ice water.



Drain well, then fill containers as in rule 6 for vegetables.



Press air from bags, then heat seal securely or twist top of bag tight, fold over, secure with rubber band or string.

## Freeze and store at 0° F. or lower

1. Select suitable variety. See pages 2 and 3.
2. Freeze only fresh products of good quality and proper maturity.
3. Gather products in the cool of the morning; handle quickly; rush to freezer soon as possible.
4. Keep in cool place while under preparation.
5. Prepare only small lots at one time; preferably 2 to 3 pounds.
6. Wash thoroughly and remove foreign materials, decayed, badly bruised, immature or over-ripe products.
7. Label cartons with name of product, date, and other information you deem useful, before starting actual preparation of the product. Special pens or waxed pencils are available for labeling frozen food cartons. A crayon may be used.
8. When using locker bags, press air out of unfilled part of bag before sealing.

## For Fruits

1. Prepare sirup if it is to be used, and chill thoroughly in the refrigerator. See page 4.
2. Label cartons.
3. Wash and sort carefully in cold running water. Prepare as for table use.
4. Drain well.
5. Mix thoroughly with sugar and then fill containers to  $\frac{1}{2}$  inch from top or
6. Fill, then cover with sirup allowing space for expansion as instructed on carton, or 1 inch from top of quarts or pints or  $\frac{1}{2}$  inch from top of squat pints. Crumpled locker wrap may be placed under the lid of container to keep fruit submerged in the sirup or
7. Fill containers to  $\frac{1}{4}$  inch from top, leave dry with nothing added.
8. Seal containers securely to prevent leakage.
9. Place immediately in freezer or in refrigerator if necessary to hold before freezing.

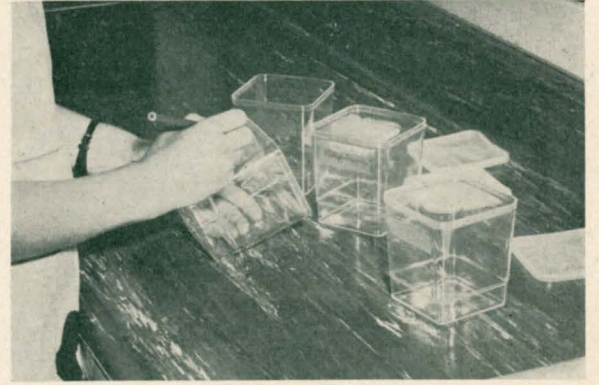
## For Vegetables

1. Label cartons.
2. Wash and sort carefully in cold running water. Prepare as for table use.
3. **Blanch** for required length of time as given on page 3.
4. Cool immediately in cold running water, or in ice water.
5. Drain well.
6. Fill to  $\frac{1}{2}$  inch from top of container, except loose products like peas and beans may be filled full.
7. Seal containers securely to prevent drying out of the products during storage.
8. Place immediately in freezer or in refrigerator if necessary to hold before freezing. Do not hold longer than 3 hours before freezing.

## Blanching

Blanching is necessary to inactivate the enzymes which would otherwise cause undesirable flavor changes. Most deep fat fryers make good blanching utensils. Place approximately 1 quart or 2 pounds of the prepared vegetable in wire basket or colander (cloth sack may be used if loosely filled) and immerse in 4 quarts or more of rapidly boiling water. Start counting blanching time when water returns to a full boil. The quantity of vegetables should be small enough so water returns to boiling in 1 minute or less. Stir occasionally during blanching. Cool immediately in cold running water or ice water. Vegetables must be cold when packed.

## RED RASPBERRIES



Label cartons with name of product and date.



Wash and sort carefully in cold water. Prepare as for table use.



Drain well and then fill cartons as rule 6 for fruits.



Cover the fruit with chilled sirup or



Gently mix fruit with sugar and then package.



To seal—press lid on firmly. A crumpled piece of locker wrap keeps fruit submerged in sirup.