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Freezing vegetables

Pat Kendall¹

Quick Facts

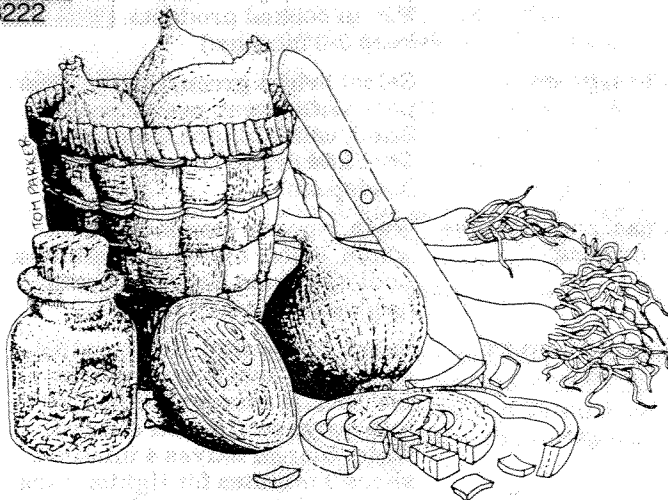
The quality of frozen vegetables depends on the quality of the fresh produce.

Blanching and prompt cooling are essential in preparing most vegetables, except herbs and green peppers, for freezing.

Vegetables may be blanched by placing them in boiling water or steam.

There are two basic packing methods recommended for frozen vegetables—dry pack and tray pack.

Most vegetables maintain high quality for 12 to 18 months at 0° F.



Freezing is an excellent way to preserve fresh vegetables. The quality of frozen vegetables depends on the quality of the fresh products and how they are handled from the time they are picked until they are ready to eat. It is important to get the product from the garden to the freezer in as short a time as possible. It is important, also, to start with high-quality vegetables as freezing will not improve the product's quality.

Blanching and prompt cooling are necessary steps in preparing practically every vegetable, except herbs and green peppers, for freezing. The reason is that heating slows or stops the enzyme action. Enzymes help vegetables grow and mature. After maturation, however, they cause loss of quality, flavor, color, texture and nutrients. If vegetables are not heated enough, the enzymes continue to be active during frozen storage and may cause the vegetables to toughen or develop off-flavors and colors. Blanching also will or softens vegetables making them easier to pack, destroys some bacteria and helps remove any surface dirt.

Selecting Freezing Containers

Select containers best suited to the vegetable. Square or rectangular flat-sided containers make the best use of freezer space. Good quality moisture/vapor-proof packaging materials made of glass or rigid plastic are best as they prevent drying of the food during freezer storage. Moisture/vapor-resistant bags and waxed cartons designed for freezing also retain satisfactory quality.

Selecting and Preparing Vegetables

Vegetables at peak flavor and texture should be used for freezing. Whenever possible, harvest in the cool part of the morning and freeze within two hours. Wash vegetables thoroughly in cold water, lifting them out of the water as grit settles to the bottom of the washing container. Sort according to size for blanching and packing.

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Vegetable Freezing Guide

Note: Blanching times given are for 5,000 feet or higher, subtract one minute from times given for less than 5,000 feet.

Vegetable	Preparation	Vegetable	Preparation
Asparagus	Select young, tender stalks with compact tips. Remove or break off tough ends and scales. Wash thoroughly. Sort for size. Cut to fit containers or in 2-inch lengths. Blanch medium stalks 4 minutes in boiling water, 5 minutes in steam. Blanch large stalks 5 minutes in boiling water, 6 minutes in steam. Cool and drain dry. Pack without headspace, alternating tips and stem ends of spears.	Carrots	Water blanch 2½ minutes. Cool and drain. Dry pack with headspace.
Beans, green	Select young, tender stringless beans. Wash thoroughly, remove ends, sort for size. Cut into 1- to 2-inch pieces, leave whole, or slice into lengthwise strips. Water blanch 4 minutes. Chill and drain. Dry pack with headspace, or tray pack.	Cauliflower	Select tender, mild-flavored carrots. Remove tops, wash and peel. Leave whole if small; dice or slice larger carrots ¼-inch thick. Water blanch whole carrots 6 minutes, diced or sliced carrots 3 minutes. Cool and drain. Dry pack with headspace.
Beans, lima	Select well-filled pods containing green beans. Wash, shell and sort. Water blanch 3 to 5 minutes, depending on size. Cool and drain dry. Tray pack or dry pack with headspace.	Corn, cut	Choose firm, tender snowwhite heads. Break or cut into pieces 1-inch across. Wash well. Soak ½ hour in salt brine (see broccoli) if needed to drive out insects. Rinse and drain. Blanch 4 minutes in boiling water containing 4 teaspoons salt per gallon of water. Cool and drain. Dry pack without headspace.
Beans, soybeans, green	Select firm, well-filled, bright green pods. Wash. Water blanch 6 minutes. Cool and drain. Squeeze soybeans out of pods. Dry pack with headspace, or tray pack.	Corn, cut	Husk, remove silk, trim ends and wash. Water blanch 5 minutes. Cool and drain. Cut kernels from cob. Dry pack with headspace, or tray pack.
Beets	Select beets 3 inches in diameter or less. Wash; sort for size. Remove tops, leaving ½-inch stems. Cook in boiling water until tender—25-30 minutes for small beets, 45-50 minutes for medium-sized beets. Cool and drain; peel, slice or cube. Dry pack with headspace.	Corn-on-the-cob	Husk, remove silk, wash, sort for size. Water blanch small ears 8 minutes, medium ears 10 minutes and large ears 12 minutes. Cool and drain. Pack in plastic freezer bags without headspace.
Broccoli	Select tender dark green stalks. Wash, peel and trim stalks. To remove insects from heads, soak 30 minutes in salt solution—4 teaspoons salt per gallon of water. Rinse and drain. Split lengthwise into pieces not more than 1½ inches across. Blanch in steam 6 minutes or boiling water 4 minutes. Cool and drain. Dry or tray pack without headspace.	Eggplant	Peel, cut into slices 1/3-inch thick. To preserve color, drop pieces into salt solution—4 teaspoons salt per gallon of water. Water blanch 5 minutes in same proportioned salt water. Cool and drain. Tray pack or dry pack in layers separated by sheets of locker paper.
Brussels sprouts	Select green, firm and compact heads. Wash and trim. Soak in salt solution (see broccoli) 30 minutes to drive out insects. Rinse and drain. Water blanch 4 to 6 minutes depending on size of head. Cool and drain. Dry pack without headspace.	Greens	Wash young, tender leaves well. Remove tough stems and imperfect parts. Cut in pieces, if desired. Water blanch tender spinach leaves 2½ minutes; beet greens, kale, chard, mustard greens, turnip and mature spinach leaves 3 minutes; and collard greens 4 minutes. Cool and drain. Dry pack with headspace.
Cabbage	Wash. Trim coarse outer leaves of solid heads. Cut heads into medium or coarse shreds, thin wedges or separate into leaves.	Herbs	Wash, drain, trim or chop. Tray freeze. Use in cooked dishes as product becomes limp when thawed.
		Mushrooms	Select mushrooms free of spots or decay. Sort for size. Wash and drain. Trim off ends of stems. Slice or quarter mushrooms larger than 1-inch across. Dip mushrooms to be steam blanched for 5 minutes in solution of 1 teaspoon lemon juice or 1½ teas-

Vegetable**Preparation**

poons citric acid per pint of water. Steam whole mushrooms 6 minutes; quarters or slices 4 to 4½ minutes. Cool and drain. Mushrooms also may be lightly sauteed in butter or margarine and cooled. Dry pack with headspace.

Onions

Wash, peel and chop fully mature onions. Water blanch 2½ minutes; cool and drain. Also may freeze without blanching. Tray pack or dry pack with headspace. Use in cooked products. (Will keep 3-6 months.)

Peas, green

Select bright green, plump, firm pods with sweet, tender peas. Shell; water blanch 2½ minutes. Cool and drain. Dry pack with headspace.

**Peas, sugar, edible-
or snow**

Wash, remove stems, blossom whole. Water blanch 3½ minutes. Cool and drain. Dry pack with headspace, or tray pack.

**Peppers, green,
sweet**

Select firm, crisp, thick-walled peppers. Wash; cut out stems. Cut in half, remove seeds. Cut into strips or rings, if desired. Water blanch halves 4 minutes, slices 3 minutes for tighter packing and use in cooked dishes. Cool and drain. Freeze without blanching for use in salads and as garnishes. Dry pack blanched peppers with headspace. Try or dry pack unblanched peppers without headspace.

**Peppers, hot,
condiment**

Wash and stem peppers. Dry or tray pack in small containers without headspace.

Peppers, chile

Wash. Make a small slit in the side for steam to escape. Heat in 400°-450° F oven 6 to 8 minutes or until skins blister. Cool in ice water for a crisp product. For a more thoroughly cooked product, wrap in a hot damp towel and allow to steam 15 minutes. Freeze without peeling or slit side, peel off skin and remove stem, seeds, membranes. Flatten to remove air, fold in half. Dry pack with waxed paper between single layers leaving headspace, or tray pack.

Pimentos

Wash. Roast in oven at 400° F 3 to 4 minutes. Rinse in cold water to remove charred skins. Drain. Dry pack with headspace, or tray pack.

Potatoes

Wash and peel; remove eyes, bruises, green spots. Cut in ¼- to ½-inch cubes. Water blanch 4 to 6 minutes. Cool and dry pack with ½-inch headspace, or tray pack. For hash browns, cook in jackets until almost done. Peel and grate.

Vegetable**Preparation**

Form in desired shapes. Pack and freeze. For French fries, peel and cut in thin strips. Rinse and dry. Fry in fat heated to 360° F for 4 minutes until brown. Drain and cool. Dry pack with headspace, or tray pack.

**Pumpkin & squash,
winter, banana,
butternut, Hub-
bard, buttercup**

Wash; cut into pieces and remove seeds. Cook pieces until soft in boiling water, steam, pressure cooker or oven with cut side down at 350°-400° F. Cool. Scoop out pulp; mash, blend or put through sieve. Chill thoroughly. Pack with headspace.

Rutabagas

Cut off tops of young, medium-sized rutabagas; wash and peel. Cut into cubes and water blanch 3 minutes. Cool, drain and dry pack with ½-inch headspace, or tray pack. For mashed rutabagas, cut into chunks and cook until tender in boiling water. Drain, mash, cool thoroughly and pack in containers with headspace.

**Squash, summer
(zucchini, yellow
straight or crook-
neck, white
scallop)**

Select young squash with small seeds and tender rind. Wash, cut in ½-inch slices. Water blanch 4 minutes. Cool and drain. Dry pack with headspace.

Sweet potatoes

Select medium to large mature sweet potatoes that have been air-dried (cured). Sort for size; wash. Cook until almost tender in water, steam, pressure cooker or oven. Cool at room temperature. Peel; cut in halves, slice, or mash. To prevent darkening, dip halves or slices in solution of either 1 tablespoon citric acid or ½ cup lemon juice per quart of water for 5 minutes. For mashed sweet potatoes, mix 2 tablespoons orange or lemon juice with each quart. Dry pack with headspace.

Tomatoes, juice

Wash, sort and trim firm tomatoes. Cut in quarters or eighths. Simmer 5 to 10 minutes. Press through sieve. Season with 1 teaspoon salt per quart of juice, if desired. Pour into containers, leaving 1½-inch headspace.

stewed

Wash ripe, blemish-free tomatoes. Scald 2 to 3 minutes to loosen skins; peel and core. Cut into pieces and freeze or simmer 10 to 20 minutes until tender. Cool and dry pack with ½-inch headspace.

Turnips, parsnips

Select tender, firm, mild-flavored small to medium turnips or parsnips. Wash, peel, cut into ½-inch cubes. Water blanch 3 minutes. Cool and drain. Dry pack with headspace.

Blanching Vegetables

Most vegetables may be blanched in boiling water or steam.

To blanch vegetables in boiling water bring at least 1 gallon of water to a rapid boil in a blancher or large kettle with a lid. Lower a pound of prepared vegetables placed in a metal basket or cheesecloth bag into the boiling water and cover with a lid. Start counting time as soon as the vegetables are in the boiling water. Keep heat on high for the total blanching time specified in the chart at the end of this sheet.

It is very important to follow the recommended blanching time for each vegetable. Underblanching may actually stimulate enzyme activity and could be worse than no blanching. Prolonged blanching causes loss of vitamins, minerals, flavor and color.

Heating in steam is another way to blanch vegetables. Steam blanching takes somewhat longer than water blanching but helps retain water-soluble vitamins. Steam blanching times are given in the Vegetable Freezing Guide table for those vegetables that steam most successfully.

To steam vegetables, bring 1 to 2 inches of water to a rolling boil in a kettle with a tight-fitting lid and a rack that holds a steaming basket or cheesecloth bag at least 3 inches above the bottom of the kettle. Put a single layer of vegetables in the basket or bag so that steam can reach all parts quickly. Place the basket or bag on the rack in the kettle, cover and keep heat on high. Start counting steaming time as soon as the lid is on.

Other ways to heat particular foods before freezing include heating pumpkin, sweet potatoes and winter squash in a pressure cooker or oven; heating mushrooms in fat in a fry pan; and simmering tomatoes on a range.

After vegetables are heated, they should be cooled quickly and thoroughly to stop the cooking.

To cool vegetables heated in boiling water or steam, plunge the basket of vegetables immediately into a large quantity of cold water that is 60°F or below. Change water frequently or use cold running or iced water. If ice is used, about 1 pound of ice for each pound of vegetables is needed. It takes about as long to cool the food as to heat it. When vegetables are cooled, remove from the water and drain thoroughly.

Packing Methods

There are two basic packing methods recom-

mended for frozen vegetables—dry pack and tray pack.

To dry pack, place the blanched and drained vegetables into meal-sized freezer bags or containers. Pack tightly to cut down on the amount of air in the package. Leave ½-inch headspace at the top of rigid containers and close securely. For freezer bags, fill to within 3 inches of top, twist and fold back top of bag, tie with a twist tape or rubber band about ½- to ¾-inch from the food. This will allow space for the food to expand. Provision for headspace is not necessary for foods such as broccoli, asparagus and brussels sprouts that do not pack tightly in containers.

To tray pack, place chilled, well-drained vegetables in a single layer on shallow trays or pans. Place in freezer until firm, then remove and quickly fill labeled bags or containers. Close and freeze immediately. Tray-packed foods do not freeze in a block but remain loose so that the amount needed can be poured from the container and the package reclosed.

Labeling and Storing

Packages should be labeled with the name of the product and the freezing date. Freeze at once at 0°F or lower. Because speed in freezing is important for best quality, put no more unfrozen vegetables into freezer at one time than will freeze in 24 hours—usually 2 to 3 pounds of vegetables per cubic foot of freezer capacity.

For quickest freezing, place packages at least 1 inch apart against freezer plates or coils.

After vegetables are frozen, rearrange packages and store close together. Most vegetables maintain high quality for 12 to 18 months at 0°F or lower. Longer storage will not make food unfit for use, but may impair quality.

It is a good idea to post a list of the frozen vegetables near the freezer and to check off packages as they are used.

References

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

Home Freezing of Fruits and Vegetables, Home and Garden Bulletin No. 10, U.S. Department of Agriculture, 1971.

Home Freezing of Vegetables, Charlotte M. Dunn, Circular B-1219, University of Wisconsin Extension Service, Madison, WI.