EC9965 Revised 1945 Food Preservation by Freezing

Mabel Doremus
May Stanek

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FOOD PRESERVATION

by Freezing

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Food Preservation By Freezing

MABEL DOREMUS AND MAY STANEK

Quick freezing, when properly done, preserves foods so that the color, flavor, texture, and nutritional values of many fresh products are more nearly retained than by any other preserving method.

In preparing foods for freezing, cleanliness, attention to detail, and speed, particularly in handling vegetables and meats, cannot be over-emphasized. Special care must be taken to obtain proper varieties of vegetables and fruits for freezing, to gather them at their prime, and to get them into the locker promptly.

**Temperatures for Freezing and Storage**

Results from research carried on at various institutions show that the most satisfactory frozen foods are obtained when the products are frozen rapidly. A sharp-freeze room or cabinet is desirable for storage lockers, and a temperature of \(-10^\circ\) to \(-20^\circ\) F. or lower should be used for freezing. Average-size packages should remain in the sharp freezer for 14 to 48 hours, depending on the kind of sharp freezer, size of package, and the nature of the product. If a sharp freezer is not available, arrange to keep food items separated or scattered until frozen. Use a fan to keep the air in motion.
It is now recommended that the storage locker room be maintained at 0° F. and never higher than 5° F. Flavor and quality are impaired if temperatures are allowed to fluctuate. When food is first frozen in a sharp freezing room or cabinet, solid wall lockers or non-ventilated lockers reduce air circulation and result in less shrinkage and dehydration during the storage period.

**Wrapping Materials and Containers for Frozen Products**

To keep frozen food similar in quality to fresh food, it is necessary to keep the moisture in and the air out. Wrapping materials and containers should be selected with these principles in mind. Moisture-vapor-proof paper is generally used for wrapping meat and poultry.

Containers should be of a size that best meets the needs of the family. Usually average-size containers (pints or quarts) are best for quick freezing. Square or rectangular containers save much space in the locker.

The containers found most satisfactory for fruits and vegetables are heavily paraffined paper-board cartons. Paraffined folding cartons with water proof cellophane or paraffined lining bags prove very satisfactory as containers for many frozen products. The liners are sealed with a hot iron.

Glass jars may be used. An air-tight container is desirable and a glass jar sealed with a rubber fulfills that requirement. Precaution needs to be taken, however, not to fill the jars more than nine-tenths full to allow room for expansion of the product in freezing. Products need to be almost completely thawed before they can be removed from the jars. Glass jars must be piled and handled carefully in lockers to prevent breakage.

Several cartons and containers are on the market, and new ones are being offered each season. A and B are serviceable cartons with cellophane bags inside which are sealed after filling. C and D are waxed fruit cups most commonly used for berries. E is a waxed square carton which can be sealed with a hot iron. F is a lightly waxed carton with vertical sides which can be used for fruit or vegetables. A, B, and E are preferred for vegetables; C, D, E, and F for fruits, and for vegetables that might leak some liquid while being prepared for freezing.
Glass jars make airtight containers but are easily broken and do not make economical use of locker space. A—cherries, B—asparagus, C—rhubarb.

Packages and cartons should be labeled with the name of the product and the date prepared. A crayon or a china marking pencil may be used for writing on waxed boxes. Meats wrapped in waxed paper may need a tag slipped on the string.

Tin containers may be used if they are air-tight. They may be sealed with a hand sealer or provided with suitable friction-top covers. Lacquered tins are necessary for most fruits and vegetables, particularly, those fruits with high acid content, those which discolor badly, such as red fruits and beets, and vegetables packed in weak brine solutions. About one-half inch space should be allowed in tin and paper containers to provide for expansion.
When cartons and cellophane bags are used, fill the bag in the carton, then seal the top of the bag with a hot iron. In this illustration, a piece of windshield glass is being used to press against in sealing the bag. Several cartons can be sealed per minute in this manner, and without handling the cartons.

Heat sealing of cellophane liner bags may be done as shown in this illustration by tipping the container over on to a padded pan and placing a warm iron on the cellophane bag.

**Selection, Preparation and Freezing of Fruit**

When choosing varieties of fruits recommended for freezing, generally those kinds that cannot be stored successfully are often frozen. For example, certain varieties of early apples with a comparatively short storage period could be frozen.

These varieties of fruits grown in Nebraska are recommended for freezing:

1. **Apples**—Duchess, Wealthy, Grimes Golden, Yellow Transparent, Jonathan, Winesap.
2. **Apricots**—Blenheim, Moorpark.
3. **Blackberries**—Snyder, Eldorado.
4. **Boysenberries**.
5. **Cherries**—Montmorency, English Morello, Early Richmond.
6. **Gooseberries**—Carrie, Downing, Champion.
7. **Grapes**—Concord, Worden, Niagara.
8. **Peaches**—Elberta, Rochester, Champion, Hale Haven.
9. **Pears**—Kieffer, Clapp’s Favorite, Lincoln, Flemish Beauty.
10. **Plums**—Redwing, Damson, Wauneta, Omaha, Superior.
A high quality frozen fruit can result only from a high quality fresh fruit. Select fully ripe, sound fruits. The use of unripe fruit results in an undesirable texture, flavor, aroma, or color. The fruit is likely to taste sour and somewhat bitter. Be sure to select ripe peaches and apricots since those frozen when too green become tough and have a bitter taste. Fruits for freezing are prepared in the same manner as for table use or canning. Strict cleanliness in handling will help reduce the number of bacteria and assure a frozen product of high quality.

**Sirup Pack.**—A sugar sirup helps preserve the color of light colored fruits. Large fruits such as peaches, apricots and plums may be packed in such a sirup. Strawberries and raspberries may also be frozen in sirup. Use the least possible amount of sirup to cover the fruit.

A 40 to 60 per cent sirup may be used. A 40 to 45 per cent sirup (medium) is best suited to sweet and mild flavored fruits while a 50 per cent sirup (heavy) may be used for sour, acid fruits. With limited amounts of sugar available, the thinner sirups should be used. When making the sirup, stir until the sugar is dissolved. It is not necessary to heat or cook the sirup.

If desired, honey or corn sirup may be substituted for sugar. Each should be made into a rather light sirup using water for thinning. Honey and sugar or sirup and sugar may be combined in a sirup with water.

**Dry-Sugar Pack.**—One method extensively used is to combine the whole or sliced fruit with dry sugar. The sugar draws out the fruit juice, forming a sirup without the addition of water. Strawberries, raspberries, cherries and other small fruit may be packed this way. The proportion is usually one pound of sugar to three or four pounds
of fruit. Distribute the sugar evenly throughout the product so that it dissolves quickly. This gives a less tender product than the sirup method but less watery. Cut strawberries one-quarter to one-half inch in thickness so that the juice is drawn from the berries quickly and the sugar and juice form a sirup at once.

When fruit is covered with a sugar sirup, or when dry sugar is put in to form a sirup from the juice of the fruit, less air comes in contact with the fruit. This is desirable because oxidation of fruits by air results in discoloration and unpleasant changes in flavor.

**Dry Pack Without Sugar.**—Some fruits have been successfully frozen without the addition of sugar or liquid. Fruits which may be handled in this way are certain varieties of raspberries, strawberries, and rhubarb. Most dry-packed fruits are more suitable for making pies, marmalades and other cooked products than they are for dessert use, since they have a tendency to be somewhat flabby when defrosted.

### Preparation of Fruits for Freezing

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Method of Preparation</th>
<th>Type of Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>Peel, slice in 1/2ths, scald in boiling water 3 to 4 minutes; cool in air or cold water</td>
<td>Dry, no sugar or sirup</td>
</tr>
<tr>
<td>Apricots</td>
<td>Sort, wash, halve and pit</td>
<td>Cover with sirup *</td>
</tr>
<tr>
<td>Blackberries</td>
<td>Clean, wash, and sort</td>
<td>Cover with sirup *</td>
</tr>
<tr>
<td>Cherries, (sour)</td>
<td>Wash, chill, pit</td>
<td>Cover with sugar, 1/2 cup to 1 qt.*</td>
</tr>
<tr>
<td>Cherries, (sweet)</td>
<td>Stem, wash, pit</td>
<td>Cover with sirup *</td>
</tr>
<tr>
<td>Gooseberries</td>
<td>Wash, stem, crush slightly</td>
<td>Cover with sugar, 1/2 cup to 1 qt.*</td>
</tr>
<tr>
<td>Grapes</td>
<td>Stem and wash</td>
<td>Cover with sirup *</td>
</tr>
<tr>
<td>Peaches</td>
<td>Peel, pit, slice</td>
<td>Cover with sirup *</td>
</tr>
<tr>
<td>Pears</td>
<td>Peel, core, quarter</td>
<td>Cover with sirup *</td>
</tr>
<tr>
<td>Pineapples</td>
<td>Peel, remove core, slice or dice</td>
<td>Cover with sirup *</td>
</tr>
<tr>
<td>Plums</td>
<td>Wash, pit, quarter</td>
<td>Cover with sirup *</td>
</tr>
<tr>
<td>Raspberries</td>
<td>Clean, wash, and crush</td>
<td>Cover with sugar, 1/2 cup to 1 qt.*</td>
</tr>
<tr>
<td>Rhubarb</td>
<td>Clean, wash, and leave whole</td>
<td>Cover with sirup *</td>
</tr>
<tr>
<td>Strawberries</td>
<td>Wash, hull, slice or crush</td>
<td>Cover with sugar, 1/2 cup to 1 qt.*</td>
</tr>
</tbody>
</table>

* See descriptive paragraph.

† When sugar is scarce.
Sirup for Freezing Fruits

<table>
<thead>
<tr>
<th>Type of Sirup</th>
<th>Water</th>
<th>Sugar Only</th>
<th>Sugar and Corn Sirup</th>
<th>Sugar and Honey</th>
<th>Corn Sirup or Honey Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium</td>
<td>1½ c.</td>
<td>1 c.</td>
<td>(½ c. sugar 1/4 c. corn sirup)</td>
<td>(½ c. sugar 1/2 c. honey)</td>
<td>1 c.</td>
</tr>
<tr>
<td>Thick</td>
<td>1 c.</td>
<td>1 c.</td>
<td>(½ c. sugar 1/4 c. corn sirup)</td>
<td>(½ c. sugar 1/2 c. honey)</td>
<td>1 c.</td>
</tr>
<tr>
<td>Heavy</td>
<td>2/3 c.</td>
<td>1 c.</td>
<td>(½ c. sugar 1/3 c. corn sirup)</td>
<td>(½ c. sugar 1/2 c. honey)</td>
<td>1 c.</td>
</tr>
</tbody>
</table>

Freezing of Vegetables

It is well to freeze only those types of vegetables in which freshness is the principal factor of quality, those which lose flavor or color in canning, those which are not bulky, and those which do not keep well by other food storage methods.

Vegetables which are to be frozen should be harvested when in prime condition. The product should be graded for uniformity in maturity and size, thoroughly cleaned, and prepared as for cooking. The shorter the time between harvesting and the time the product is properly prepared and placed in the sharp freezer, the better the product.

Some vegetables which, when properly frozen and cooked, taste like fresh vegetables are: peas, young lima beans, asparagus, sweet corn off the cob, broccoli, spinach, and kale. Experiments have shown that certain varieties of vegetables are better adapted to freezing than others. Some varieties of vegetables grown in Nebraska found to be good for freezing are:

5. Broccoli—Italian Green Sprouting.

Vegetables to be frozen must be scalded in boiling water or steam immediately after preparation in order to destroy enzymes which might result in undesirable flavor. Scald not over a pound of vegetable per gallon of boiling water. A wire basket or a cheesecloth sack
Wash vegetable thoroughly immediately after harvest. Place in wire basket ready for scalding.

Peas or other similar vegetables may be scalded in this manner. Use a large deep kettle and about four quarts of boiling water. Scald not over a pound of vegetable at a time, using the same boiling water again and again.

Sweet corn can be scalded in this manner. Use a large deep kettle about two-thirds full of boiling water. Dip from six to twelve ears at a time, depending upon how much help is available to cool, cut, and package the corn quickly.

Immerse scalded vegetable in cold running water. Ice will help to cool the vegetable to at least 60°F.

may be used for immersing the vegetables in the boiling water. The water should reach the boiling point again one-half minute after the vegetable has been immersed in it. Cool the vegetable quickly to at least 60°F. in cold running water. Ice may be used for chilling the water. Drain well and pack. Quick freeze at once.

A plastic funnel and wire frame help to hold the cellophane bag and carton in shape for filling.
Brine Pack.—Commercially packed vegetables are packed without liquid and this method is recommended for home use. A few people prefer to pack vegetables in a two per cent salt solution which later can serve as part of the cooking water. This brine solution is prepared by adding one teaspoon of salt to one cup of water, and should be cold when added to the product.

**Preparation of Vegetables for Freezing**

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Form in Which Frozen</th>
<th>Treatment Before Freezing</th>
<th>Care After Scalding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asparagus</td>
<td>Young, green tips</td>
<td>Wash, scald 3½ minutes</td>
<td>Cool in cold running water, pack in airtight containers. Quick freeze</td>
</tr>
<tr>
<td>Beans:</td>
<td>Small, fresh, tender</td>
<td>Clean, wash, cut into desired length, scald 2 minutes</td>
<td>Cool in cold running water, pack in airtight containers. Quick freeze</td>
</tr>
<tr>
<td>Snap</td>
<td></td>
<td></td>
<td>Store at very low temperature</td>
</tr>
<tr>
<td>Beans:</td>
<td>Green beans</td>
<td>Shell, wash, scald 1 to 2 minutes depending on size</td>
<td>Cool promptly. Pack in airtight containers. Quick freeze</td>
</tr>
<tr>
<td>Lima</td>
<td>best</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans:</td>
<td>Young and fresh</td>
<td>Scald pods, shell, and scald beans 2 minutes</td>
<td>Cool in cold running water. Pack in airtight containers. Quick freeze</td>
</tr>
<tr>
<td>Soy</td>
<td></td>
<td></td>
<td>1½ in. diam. Scald 2½ min. Over 1½ in. diam. Cook until tender</td>
</tr>
<tr>
<td>Beets</td>
<td>Young and tender</td>
<td>Cut off tops; mature beets should be cooked then peels rubbed off. Slice or dice beets</td>
<td>Cool in cold running water. Pack in airtight containers. Quick freeze</td>
</tr>
<tr>
<td>Broccoli</td>
<td>Compact heads</td>
<td>Cut head into one-inch thick pieces. Wash, scald 3 to 5 minutes</td>
<td>Cool in cold running water. Pack in airtight containers. Quick freeze</td>
</tr>
<tr>
<td>Carrots</td>
<td>Young and small</td>
<td>Top, scrape, then cut into ¼-inch slices. Scald 3 minutes</td>
<td>Cool in cold running water. Pack in airtight containers. Quick freeze</td>
</tr>
<tr>
<td>Peas</td>
<td>Young, fresh</td>
<td>Wash, scald 45 seconds, if small, 1 minute if large</td>
<td>Cool in cold running water. Pack in airtight containers. Quick freeze</td>
</tr>
<tr>
<td>Spinach</td>
<td>Young, fresh</td>
<td>Wash in running water eliminating all sand and earth. Discard thick stems, scald small amount at a time, for 2½ minutes</td>
<td>Cool immediately in cold running water. Drain and pack in moisture-vapor-proof containers. Quick freeze</td>
</tr>
<tr>
<td>Sweet corn, on the cob</td>
<td>Fresh, young, tender</td>
<td>Husk, sort and scald 6½ to 10½ minutes depending upon the size of ears and maturity of kernels</td>
<td>Cool immediately, in very cold running water. Wrap individual ears in moisture - vapor - proof paper and quick freeze</td>
</tr>
<tr>
<td>Sweet corn, whole kernel</td>
<td>Fresh, young, tender</td>
<td>Scald ears 2 or 3 minutes. Cool. Cut from cob</td>
<td>Pack dry in moisture-vapor-proof containers and quick freeze</td>
</tr>
</tbody>
</table>
Preservation of Meat by Freezing

Beef, lamb, and pork can be stored in a freezer locker for some time. Healthy, well-conditioned animals furnish the best meat. A good covering of fat protects the lean meat from drying while frozen and is more tender and juicy than plainer meat. Fresh pork is more perishable than beef or lamb and ordinarily should not be kept more than 6 to 8 months in the locker. Beef, lamb, and lightly cured pork may be kept a year or more if properly prepared and stored in a good locker.

In handling meats, insure cleanliness by having clean hands, utensils, clothing, and equipment. Beef and lamb may be aged to develop flavor and tenderness but recent experiments indicate that the longer they are aged the sooner they become rancid in the frozen food lockers. The temperature of the aging room should be around 36°F. Pork is not aged but packaged and frozen as soon as thoroughly chilled (36 to 48 hours).

To conserve locker space, trim the cuts to convenient shapes, removing as much bone as possible.

The size of the individual meat package will depend on the size of the family and the refrigeration facilities at home. When a number of cuts are placed in the same package, each cut should be separated from the others by a layer of waterproof paper. If this is done, then individual cuts may be separated without thawing. Ground meat may be packaged in wax paper cartons. Sausage is usually frozen without salt or spices and seasoned just before using.

In order that meat be palatable after being kept several months in a frozen food locker, proper packaging and wrapping materials are extremely important. Meat should be packaged in a moisture-vapor-proof paper in a manner to exclude air as completely as possible. A double wrap is sometimes used as added protection against dehydration. Sometimes wrapped meats are placed in an elastic stockinette. The advantages of using the stockinette are to protect the wrapping from being torn or punctured during handling, to hold the wrapper in close contact with the meat, to do away with need for tying or taping the package, and to make a neat appearing package. After the package is wrapped, it is tied carefully or sealed with special tape, and the contents of the package and date indicated. The wrapped meat is then spread out in the sharp freezer for freezing. It is important for the meat to be frozen before it is packed in the lockers. If piled in the locker, freezing will be delayed and there is more danger of spoilage and off flavors. When meat is frozen too slowly, it loses much of its juice in thawing and cooking and as a result, the product is dry when served at the table.

Dip-coating is a new method for covering frozen foods which avoids many of the disadvantages of the wrappers in use today. The material used for coating must be odorless, chemically stable, non-toxic, insoluble in water, firm but flexible at low temperatures, and easy to apply.
Tough, waxed paper is used to wrap meat. In this picture, note how the meat is being wrapped tightly with the inner waxed sheet of a special double freezer locker paper. The outer brown sheet is then wrapped around the package and tied.

and remove. One such material, now in the experimental stage, is plasticized or microcrystallin paraffin. The film coating reduces oxidation, loss of moisture, and "freezer burn."

Cured and smoked meat can be frozen. If meats have been properly cured, they will keep well under ordinary storage, but freezing helps to keep off the mold. It is advisable to cut ham into roasts or steaks unless an entire ham is to be roasted. Bacon should be sliced before freezing. It is possible to use a milder cure when cured meat is to be stored in the locker. Be sure to wrap smoked meats well.

To prepare poultry for freezing, thoroughly clean and prepare the bird as for table use. After dressing and removing the pin feathers, wash it carefully in cold water and cool thoroughly. Poultry may be stored either whole or cut up. Some prefer to cut up fowl in order to wrap pieces of one kind, for example; legs, breasts, giblets, etc. in separate packages. Giblets should be wrapped separately in moisture-vapor-proof paper, even when frozen with the whole bird.

Poultry may be glazed to prevent drying out. This service is offered at some locker plants and can be done satisfactorily only at the plant. The poultry is frozen, then dipped quickly into cold water. The zero temperature of the fowl causes a thin coating of ice to form over it immediately that seals and protects it. An extra charge is usually made for this service.

Chicken may be wrapped in the same kind of moisture-vapor-proof paper used for meats, or in cellophane moisture-proof bags. The poultry may be sealed in the bag by pressing the folded edges with a hot iron. Sometimes broilers and frying chickens are wrapped and frozen in large, friction top, tin cans.
**Preservation of Fish by Freezing**

All fish to be frozen should be placed on ice or in a refrigerator as soon as possible after catching and never be allowed to become warm. Before freezing, they should be properly cleaned and ready for cooking. If clean fish are immersed in 10 per cent salt solution for 20 to 30 seconds, the leakage or “weep” is reduced when the fish is thawed for cooking. They are then frozen as described for meat. Fish may be glazed after freezing to prevent drying out. (See directions for glazing poultry.)

**Freezing Eggs**

Only liquid eggs may be frozen. Freeze them in the form of whole eggs, whites alone, or yolks alone. When freezing whole eggs, break fresh clean eggs into a clean bowl. Beat the yolks so as to blend the yolks and whites. If desired, a tablespoon of sirup or honey may be added to each two cups of liquid eggs, to prevent further gumminess in thawed eggs.

Separate whites from yolks when breaking if desired. Beat yolks slightly and add one tablespoon of sirup or honey to each two cups of liquid yolks. Package whites with nothing added and no mixing.

Put eggs into moisture-vapor-proof containers, quick-freeze promptly and store at 0°F. Use one tablespoon egg yolk as an equivalent for one egg yolk asked for in a recipe. Use one and one-half tablespoon whites for the white from one egg.

**Freezing Cooked Foods**

The resourceful homemaker will find that she can use her locker to advantage for storing many cooked foods which are sometimes prepared in larger quantities than needed for a single meal. The surplus may be placed in suitable containers and stored in the freezer locker if space permits. Such foods might include baked beans, chili, stew, creamed chicken, chicken à la king, cooked chicken for salad, part of a large roast or turkey, concentrated soup stock, steamed puddings, brown bread, and others too numerous to mention. These may be packaged in a manner similar to fruits and vegetables.

The freezer locker offers a desirable method for preserving and storing grated cheese and shelled nuts. These should be placed in tightly closed containers the same as vegetables and fruits.

**Preparing Frozen Foods for the Table**

Refrigeration is desirable for frozen foods when they are removed from the locker. They may be kept for several days in the freezing compartment of a mechanical refrigerator. They will defrost slowly in an ice refrigerator but should not be left for longer than 12 hours after they are completely thawed. If it is desired to keep them longer, cook and then reheat just before serving.
Cooking Frozen Vegetables

Frozen vegetables need not be thawed before cooking. If they are partially defrosted, however, the large frozen pieces may be broken up easily when the vegetables are put on to cook. The cooking process is similar to the method used for fresh vegetables. Use a covered utensil with a small amount of water and bring to a boil as rapidly as possible and begin to count the time when the water boils again. Cook approximately for one-half to two-thirds of the time required for cooking fresh vegetables. Leave the cover on until the vegetables begin to boil, then raise the lid for venting, replace the lid, lower the heat, and cook until the vegetable is done. Do not overcook.

Corn-on-the-cob is an exception to the rule that vegetables do not require thawing. If it is not thawed before cooking, the kernels will be overcooked and soggy before the center of the cob is hot. Be sure to use corn soon after it has been defrosted as it spoils more readily than the fresh product.

Serving Frozen Fruit

Frozen fruits are similar to fresh, unfrozen fruits that have stood in sugar. When served like fresh fruit, they are most palatable if served while still containing a few ice crystals. Experimenting to determine the time required to defrost the fruit to just the correct point is well worth the effort. Frozen fruits that have been thawed should be used very soon as they spoil more readily than fresh fruits.

If fruits which are frozen without sugar or sirup are to be used without cooking, it is desirable to sprinkle some sugar or powdered sugar on top of the product before thawing. Such fruits may be used for ice cream toppings, short-cakes and other desserts where fresh sweetened fruit would be used.

Cooking Frozen Meats

It is not necessary to thaw meat before cooking. There is no difference in the flavor. There is less leakage after thawing if this is done in the refrigerator for a day or two. Do not thaw in water as this draws out the meat juices. Cook as soon as possible after thawing. Frozen meat, after thawing, spoils more readily than fresh meat not frozen.
If meat is not thawed, extra time will be needed for cooking. Experiments have shown that the shape of a roast influences the cooking time. A boned rib roast requires approximately 20 minutes more per pound when cooked without thawing (35 minutes when thawed and 55 minutes when not thawed). A roast without bones requires a longer cooking time than one with bones, approximately 10 to 20 minutes longer per pound, depending on the shape of the roast. A meat thermometer is useful for accuracy in roasting. To use it, make a hole in the meat with a skewer. Insert the thermometer in the largest or thickest part of the meat to the center. Ordinarily, frozen steaks and chops are cooked approximately twice as long as fresh, unfrozen ones.

**Vitamin Values of Frozen Fruits and Vegetables**

Recent studies on vitamin values of frozen food products indicate that frozen fruits lose little of their vitamin B and vitamin C content during freezing or freezer storage if kept at very low temperatures. Frozen fruits, eaten as soon as taken from storage, contain more vitamins than canned fruits. Frozen vegetables stored at very low temperatures retain Vitamin A and Vitamin B. The Vitamin C value of frozen vegetables is conserved by freezing but may be decreased between the harvesting and freezing and during the scalding and cooling in preparation for freezing if these processes are not carefully safeguarded. When frozen vegetables are cooked, Vitamin C values may be conserved if a small amount of water is used, if the vegetables are not over-cooked, and if the water is served with the vegetable or in some other form.

**Home Freezing Units**

New developments along the line of freezing and storing frozen foods may be expected, especially in the use of home freezing units. The successful use of these will require research and investigation in order that they may be used most efficiently.

Additional references:
A W 1—100—How to Prepare Vegetables and Fruits for Freezing.
A W 1—75—Freezing Meat and Poultry Products for Home Use.
E. C. 9967—Freezing Eggs.