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Freezing

OF

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HOME FREEZING OF FRUITS AND VEGETABLES

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Freezing is a simple, easy and very satisfactory method for preserving foods. This method is practical for those who produce their own fruits and vegetables or for those who can buy country fresh products.

By this method foods can have most all of the natural color, flavor and nutritive value of fresh foods, provided they are properly selected, prepared, frozen and stored.

Success Depends Upon:

1. **Quality Food**—Select high quality foods for freezing. Freezing does not improve the quality. It merely preserves quality and prevents spoilage. The frozen food that comes out of the locker cannot be better than the food put into the locker.
2. **Variety of Product**—Some varieties of certain foods such as fruits and vegetables are better suited for freezing than others. (Consult Preparation Guide). Keep this in mind at planting time.
3. **Careful handling and preparation of the food is very important for retaining quality.** Included are items such as, careful selection of food, speed and cleanliness in preparation, proper slaughtering, quick and thorough cooling of meats, careful scalding and thorough cooling of vegetables, etc.
4. **Packaging in airtight, moisture-proof containers or wrappings.**
5. **Airtight seals.**
6. **Freezing immediately after packaging.** If a delay is unavoidable hold the filled containers in a refrigerator until they are taken to the freezer plant. Spread packages apart for quick freezing. Stack when stored.
7. **Storage at even 0° F. temperature.**

Since the slogan "Full Speed Ahead" is a good one to observe for retaining quality in frozen foods, it is important that needed equipment and supplies be ready for use.

In general the most essential tools and materials are:

A sharp knife

Several large pans or crocks

A large kettle with tight fitting lid (for scalding vegetables)

A fine mesh wire basket or a colander, or several yards of cheese cloth

Plenty of boiling water when preparing vegetables

Ice and plenty of cold water, unless cold running water is available for cooling vegetables

Packaging material (suited to the product to be processed)

Two or three large trays or utility pans

Square funnel and form for filling bags

An iron for heat sealing

Wax pencil or water proof ink for labeling

General Suggestions for Fruits and Vegetables

Gather fruits and vegetables in the early morning on the day they are to be prepared.

Freshness—"Freshness" contributes definitely to the quality of both fruits and vegetables. For example holding freshly picked peas in a warm room for several hours (3 or 4) toughens the skins somewhat. Rather heavy loss in food value occurs during this time. Both fruits and vegetables should be free from bruises, spots and blemishes of all kinds.

Select fruits and vegetables at right stage of maturity. Very important. In general prime maturity is when they are just ready for table use. Avoid over mature, starchy corn and peas. Snap beans picked when the pods are about two-thirds their full size are excellent for freezing. Fruits should be full ripe, not under ripe, nor over ripe. Field ripened fruits are best.

Cleanliness and sanitary methods should be carefully observed. Freezing does not sterilize the food. Some bacteria survive freezing temperatures. However, the low temperature of freezing does prevent harmful yeasts, molds and bacteria from growing and developing.

Clean, pure water should always be used. Use clean utensils and handle the food in a sanitary manner.

Wash fruits and vegetables thoroughly.

Special Steps for Fruits

To prevent darkening of light colored fruits such as peaches, work with small quantities at a time and treat each batch by one of the following methods:

1. Sugar syrup—Slice the fruit directly into cold syrup which can be used later for freezing.
 2. Citric acid— $\frac{1}{4}$ teaspoon citric acid to one quart water. Allow fruit to remain in the solution one minute. Will need about one gallon for a bushel of peaches. Remove and pack.
 3. Ascorbic acid (vitamin C)—Add $\frac{1}{8}$ to $\frac{1}{4}$ teaspoon ascorbic acid, to 1 or $1\frac{1}{2}$ cups of cold syrup. Pour syrup over the packed fruit. The crystalline or granular form of ascorbic acid is more desirable than in tablet form. Ascorbic acid may also be added to dry sugar (about $\frac{1}{4}$ teaspoon of crystalline ascorbic acid per pint of sugar). If the tablet form is used, use 125 to 150 milligrams, crushed, to 1 pint of fruit.
- Both citric and ascorbic acid may be purchased at the drug store.
4. Apples and rhubarb may be scalded in steam for $1\frac{1}{2}$ to 2 minutes. Sweeten with sugar or syrup. Ordinarily we expect a more pronounced fruit flavor with sugar than syrup.

Some of the juicy fruits such as berries are believed to be better when mixed with dry sugar. After mixing allow sugar to dissolve before packing.

Blueberries, cranberries and rhubarb are good frozen plain pack (without sugar).

To make syrup of varying degrees of sweetness use the following amounts of sugar to a quart (4 cups) of water.

Percentage	Sugar Cups	Water Cups
20% syrup	1	4
30% syrup	2	4
40% syrup	3	4
50% syrup	4	4
60% syrup	6	4

To make syrup dissolve the sugar in either cold water or hot water. Syrup must be cool when ascorbic acid is added. It must be cold when added to the fruit.

One-half cup of sugar and $\frac{1}{2}$ cup of light corn syrup may be used instead of one cup of sugar.

Leave Head Space

In carton or bag leave $\frac{1}{2}$ inch head space if packed without syrup. Leave one inch head space if packed with syrup or for purees or crushed fruits. In glass jars or tin cans leave $1\frac{1}{2}$ inches head space.

A wad of crumpled waxed or parchment paper or cellophane may be placed on top of fruit to keep it below syrup.

Containers

The first essential is that the container be moisture-vapor-proof. At present some of the containers best suited for packing fruits are: Cartons with a heat sealing liner of cellophane or separate cellophane bags which are placed in cartons when filled. Waxed cup containers with set in lids are also used.

Most frozen food plants have various satisfactory types of containers. Space may be conserved by using containers square or rectangular in shape.

FRUITS PREPARATION AND PACKING

Fruit	Preparation	Pack
Apples	Peel, core and slice. Place directly into syrup or sugar or scald 1½ to 2 minutes or use ascorbic treatment to prevent darkening.	Pack. Use sugar pack. (1 cup sugar to 4-5 cups fruit) for summer apples and sugar or 20-30% syrup for autumn apples.
Apricots	Use full ripe fruit but not soft. Peel or not. Halve and pit.	(1 cup sugar to 4½-6 cups fruit). Pack quickly and cover with 40% syrup to which ascorbic acid has been added. Or use sugar pack.
Berries (except strawberries)	Use full ripe berries. Drain washed berries well.	Sugar pack. (1 cup sugar to 6 cups of fruit) or cover with a 30 or 40% syrup.
Cherries (sour)	Wash, drain and pit.	Pack with sugar to which ascorbic acid is added (1 cup to 4 or 5 of fruit).
Cherries (sweet)	Wash, drain and pit or not, as desired.	Pitted cherries. Pack with sugar to which ascorbic acid is added (1 cup sugar to 6 of fruit). Whole cherries. Cover with 30% syrup, preferably to which ascorbic has been added.
Cranberries	Pick over and wash. Chop rather fine.	Packed without sugar; (chopped) or (1 cup sugar to 6 or 8 of berries) or 50% syrup.
Peaches (free stone) and Nectarines	Wash, peel (scalding 1½ minutes in boiling water will loosen skins for peeling). Halve, quarter or slice.	Pack in sugar to which ascorbic acid has been added. (1 cup sugar to 4½-6 cups fruit). Or pack 30-40% syrup.
Pineapple	Use ripe fruit. Slice, pare, remove core. Cut into small pieces or crush.	Cover with 30-40% syrup or (1 cup sugar to 5 or 6 of fruit).

FRUITS PREPARATION AND PACKING

Fruit		Pack
Plums and Prunes	Sort, wash, halve and pit.	Pack in 1 cup sugar to 4½-10 cups fruit, or 30-35% syrup.
Rhubarb	Wash, trim and cut into 1 inch pieces	Pack without sugar or (1 cup sugar to 5 or 6 cups fruit or a 40% syrup.)
Raspberries	Choose ripe juicy berries. Sort and wash sparingly	Pack plain; or better mix 1 cup sugar with 5-6 of fruit or best cover with 30-40% syrup.
Strawberries	Wash, cap and leave berries whole, slice or crush.	Pack in 1 cup sugar to 5-6 cups fruit, or pack in 40% syrup.
Cantaloupe	Select firm ripe fruit. Remove seeds and rind. Cut into small wedges.	Pack in 40% syrup.

Special Steps for Vegetables

Scald (blanch) vegetables. Scalding brightens the color, and shrinks vegetables and makes them easier to pack. It also checks the action of enzymes. While enzymes are helpful in growth and ripening they also cause loss of vitamins as well as flavor and color after food has reached maturity and is gathered unless checked.

Scalding in boiling water gives a satisfactory product although a steam blanch when available is somewhat more desirable.

To scald or blanch in boiling water place the vegetable in a fine mesh basket, about one pound to each gallon of water. A wire cover will hold the food under the water. Put lid on the kettle and start counting time when water returns to boiling. Watch blanching time carefully—just enough.

Chill quickly and thoroughly. When scalding time is up remove, drain the vegetable and plunge immediately into ice water or hold under cold water faucet until *thoroughly cool*. If neither ice nor running water is available, use several changes of cold water. Drain and pack.

Pack into moisture-vapor proof containers. The dry pack is satisfactory for all vegetables except asparagus for long storage.

Leave head space. Food expands as it freezes. When packed without liquid, leave about 1/2 inch head space at top of carton or bag for foods that pack tightly. No head space is needed for loosely packed foods such as broccoli or cauliflower.

For vegetables packed in liquid, leave about one inch head space in cartons or bags; 1 1/2 inches in glass jars or tin cans.

Make airtight seals. The heat seal is the best seal for cellophane bags or for specially treated paper bags or cartons. To do this place a warm iron over the folded edges.

Containers that seem best suited for packing vegetables for freezing are: Rectangular cartons with heat sealing linings of cellophane or specially treated paper. These may come as a part of the carton or may come separately. Double cellophane bags or bags of specially treated paper may also be used. Remember that whatever the container may be, it must be moisture-vapor proof. *Use the best.* It pays.

Freeze immediately or as soon as possible after packing. Spread packages apart for rapid freezing.

Store at 0° F. or lower temperature after freezing.

PREPARATION GUIDE

Vegetable	Suggested Variety	Preparation	Blanching (Scalding Period)	Pack
Asparagus	Martha Washington	Discard tough stalks, wash well. Leave whole or cut into desired lengths. Sort into 3 groups according to thickness of stalk. Scald, chill and drain.	2 to 4 min. in boiling water according to size of stalk.	Dry pack or pack in a 2% brine (1 t. salt to 1 c water) if long storage is likely.
Beans, Lima	Henderson's Bush Early Baby Potato Baby Ford hook	Shell, wash and sort according to size. Scald and chill. Then sort out any beans that have turned white; these may be cooked.	2 to 3 min. in boiling water, according to size.	Dry pack
Beans, Snap	Stringless Green Pod Tender Pod Tender Green Logan Kentucky Wonder (Pole) Top Notch or Pencil Pod Black Wax	Wash well, cut off stem and tips. Leave whole, or cut into pieces. Scald, chill.	2 to 3 min. in boiling water.	Dry pack
Broccoli		Cut off large leaves and tough stalks. Wash well. Split lengthwise so heads are not more than 1 inch across. Scald, chill and pack.	5 min. in steam or 4 min. in boiling water.	Dry pack
Cauliflower		Select white, compact heads. Break into pieces about 1 inch across. Wash, scald and chill.	3 or 4 min. in boiling water.	Dry pack

PREPARATION GUIDE

Vegetable	Suggested Variety	Preparation	Blanching (Scalding Period)	Pack
Corn, on cob	Golden Cross Bantam	Use corn in milk stage. Husk, remove silk and trim off bad spots. Wash, scald and chill.	5 to 8 min. in boiling water.	Dry pack
Corn, whole Grain	Golden Cross Bantam	Use corn in milk stage. Husk, remove silk and trim off bad spots. Wash, scald and chill. Cut kernels off cob.	3 to 5 min. in boiling water.	Dry pack
Greens		Wash well, remove imperfect leaves and large tough stems. Scald and chill.	1 to 2 min. in boiling water.	Dry pack
Okra	Spineless	Young tender pods, wash, scald, cut or leave whole.	2 min. in boiling water.	Dry pack
Peas	Glacier Thomas Laxton Laxton's Progress World's Record Little Marvel Perfection	Shell, sort out immature and tough peas, wash, scald and chill.	1 min. in boiling water	Dry pack
Squash, summer		Choose young tender squash. Cut into pieces or slice.	4 min. in boiling water	Mash or sieve, cool, pack
Squash, winter		Halve, remove seeds, peel and cube.	Steam or boil until tender	Mash or sieve, cool, pack
Soybeans		Boil in pods for 5 min. Chill. Squeeze beans out of pods. Wash and drain.	No additional scalding required	Dry pack

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