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FOOD PRESERVATION IV



UNIVERSITY OF MISSOURI

COLLEGE OF AGRICULTURE

AGRICULTURAL EXTENSION SERVICE

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FOOD PRESERVATION BUDGET

Product	Approximate times to be served	Amount to be pre-served for 1 person	For Our Family
Tomatoes and tomatoes juice.	Every other day.	20-30 qts.	
Cabbage Chinese cabbage and other raw leafy vegetables.	Every other day.	5-10 heads stored. ¼-1 gal. kraut.	
Green & yellow vegetables Greens, peas, young green beans, carrots, broccoli, yellow squash, etc.	Once a day. Cooked greens once a week.	20-25 qts. frozen and canned. ½-1 bu. stored.	
Potatoes	Once a day. Sweet potatoes once a week. Children under 10 half of this amount.	2-3 bu. of Irish. ½ to 1 bu. of sweet.	
Dried beans, peas and nuts	Once a week.	1-2 pints. 1-5 lbs. nut meats.	
Other vegetables Lima beans, beets, onions, corn, mature green beans, turnips, salsify, parsnips, etc.	Once a day.	10-15 qts. frozen. 7 canned. 1-2 bu. stored. 0-1 pint dried.	
Fruits & fruit juices Apples, pears, peaches, berries, cherries, plums, grapes.	Twice a day.	40-50 qts. frozen. 7 canned. 2-3 bu. stored. 0-1 pint dried.	
Meat Pork, beef, chicken and other meats.	Once a day. Children under 10 half this amount.	20-25 pints frozen or canned. 15-20 lbs. cured.	
Sweets, Fats, Cereals	Some each day, according to the energy needs of the individual. Children under 10, ¼ these amounts.	3-5 qts. jam, preserves. 3-5 qts. relishes, pickles. 1-2 gal. honey & sorghum. ½-1 gal. lard. 10-15 lbs. bacon. 1-4 qts. shelled popcorn.	

Put This Plan Into Effect For Your Family

FOOD PRESERVATION IV

FLORA L. CARL AND JOSEPHINE FLORY*

You have decided to take Food Preservation IV. That means you are quite a “specialist” in preserving foods. You know how to freeze, can and dry fruits and vegetables and how to make delicious preserves, jams, jellies, pickles, and relishes. This year you are going to put all the things you have learned together and make a plan for preserving the family’s food supply. You will also learn how to can meats, freeze prepared foods and whole meals and to make food gift boxes.

GETTING READY

Your food preservation efforts will be more successful if you do not attempt too much in a day. Your work not only will be more pleasant, but your preserved food will be of higher quality if you do small quantities. And it’s easier to keep the canner’s golden rule—two hours from the garden to the can or freezer.

Put only high quality, garden-fresh produce into your freezer or jars. Sort and lay aside the over-mature vegetables, the tomatoes with soft spots and other imperfect foods for table use.

Accuracy, cleanliness, speed and high quality produce are the keys to success in putting good home preserved foods on your table. Before you start to preserve, check your equipment. Also, you’ll need up-to-date directions for preserving various foods.

You will more nearly preserve the right amounts of food for your family if you make out a food preservation budget at the beginning of the growing season. The budget will help you decide how much of each food your family will need. In making the budget, you will want to consider the number in your family, their needs and preferences, and the availability of fresh, frozen and stored foods. And you will want to consider the actual cost of preserving as well as your own skill and time.

Making Your Food Preservation Budget

In planning a food preservation budget, consider the various methods of preserving foods as canning, drying, brining, preserving with sugar, salt or vinegar, freezing, and storing. By using different methods of preservation, you can have a greater variety of products.

The jellies, jams, conserves, preserves, pickles, relishes, and such products are usually listed in the luxury class of foods. They do add an accent of color and flavor to starchy foods, meats and some vegetables.



*In collaboration with Ruth C. Upchurch and Charline Lindsay, State Club Agents.

In other words, they add the "glamour" to an ordinary meal. Jellies, jams, and preserves are energy foods. How much of these products a family will use will vary with the amounts of other sweets they use, their likes and dislikes, the amount of time and money available for food, and the health interest of the family.

It is desirable to include from 5 to 7 servings of fruits and vegetables in each day's meals, every day of the year. Because of the extra amounts of good food materials vegetables contain, one of these should be a dark green or a deep yellow vegetable. Another should be a fresh raw fruit or vegetable and tomatoes or a citrus fruit. In normal years many Missouri families have found it possible to have these amounts of fruits and vegetables from their own farm. They have canned, dried, frozen, and stored foods to use when fresh ones are not available. By planning ahead, a family could have not only enough, but also a variety of good quality vegetables. On page 2 is a suggested food preservation budget for one person for one year. How much does *your* family need?

Do You Know These?

In getting ready to can there are certain problems and definitions you should know. Some of these you'll remember from your previous experiences. Check these terms. Do you know what they mean?

Vacuum is an empty space with no air in it. When a jar is heated everything in it expands and the air is pushed out. As the jar cools, its contents shrink. This leaves a partial vacuum at the top of the jar.

Processing is heating jars or cans of food in a water bath, steamer or pressure canner long enough to stop enzyme activity and to destroy spoilage organisms. When food is processed in glass jars, air is forced from the jar. Then when the jar is removed from the processing kettle and cooled, a partial vacuum forms which is great enough to give an airtight seal. This seal may be broken if the jars are inverted or lifted by their tops while hot.

Sterilize means to heat long enough to kill the organisms which would, if not killed, cause the food to spoil.

Partly Seal is to leave lids loose enough for air and steam to escape from the jar while processing.

Venting refers to the escape of air and steam from the processing canner and containers. The petcock is left open to vent or exhaust the pressure canner. To have a uniform exact temperature for a given pressure, all air must be forced out of the canner. If both air and steam are in the canner, you do not get the temperature you expect from the gauge reading. For this reason venting is very important. The petcock should be left open until the air is out. Some canners allow a small trickle of steam to escape or vent from the canner throughout the processing period.

Enzymes are chemicals which bring about natural changes in raw foods. Enzymes improve the quality of raw products up to the best eating stage; then the changes they produce make the food less and less desirable. Enzyme action is stopped if the food is heated to boiling or near boiling temperature.

Organisms of Spoilage are yeast, molds, and bacteria which cause undesirable changes in foods in which they grow.

Botulism is poisoning caused by a toxin produced in some canned foods by a certain bacteria. These bacteria will not grow in acid foods. That's why they'll not grow in fruits or tomatoes unless molds or yeast first change these foods so there is not enough acid present to prevent bacterial development.

The poisonous toxin is destroyed by boiling. *All low-acid home canned food must be boiled before it is tasted.* Fortunately there may be an odor which you can detect when the canned food containing this toxin is heated. If there is any off-odor in any canned low-acid food, it should be burned.

Flat Sour Bacteria grow best in a canned low-acid food stored at warm temperature. They produce an acid, but no gas or bubbles. There is no bulging of the lid or leakage. The food tastes somewhat sour and is usually soft. These bacteria thrive in a warm temperature. Vegetables may spoil before they are canned.

White Crystals in canned spinach are calcium oxalate, a combination of the calcium and the oxalic acid in the spinach. They are harmless.

White Sediment may indicate spoilage, although it may also be due to hard water or table salt.

Cloudy Liquid in vegetables may be due to the starch that has cooked out of the vegetables. It may be caused by the minerals in hard water or improper salt. It may be due to flat-sour or other types of spoilage due to a faulty seal. Always boil any doubtful looking vegetables before tasting. Smell the food while it boils. If there is any off odor burn the food.

Corn may turn brown if too young or overcooked, or if the temperature is too high. The sugar carmelizes and causes the brownish discoloration and different flavor.

Beets may turn black if they come in contact with iron. The iron may come from water, iron kettle or a chipped enamel pan. Beets may brown if soap remains in jars.

Fruit Will Float if lighter than the sirup it is in. Over-cooking fruit or tomatoes will cause them to separate and come to the top of the jar.

Brown Discoloration of fruit in the top of the jar is due to oxidation. Unless the enzymes are destroyed by heat and the air removed from the fruit by preheating, fruit in the head space will turn brown. The brown discoloration may occur some time after the food was canned. This is due to under-processing. Brown discoloration is not harmful. If all the food is brown it has probably been overcooked.

Loss of Color in fruit is not unusual. Light causes all canned foods to fade. Berries lose color in the sirup and so are lighter. Berries, like other red foods, bleach in plain tin cans because of the action of the metal.

Storing Canned Foods

Canned food is valuable. It should be well treated from the time it comes from the canner until served. Improper handling of the canned food, especially while still hot, often causes poor seals and spoilage.

Store canned food in a cool place as heat will increase the loss of color, flavor, food value, and may cause flat-sour or other kinds of spoilage. Make sure the canned food will not be kept warm by a chimney, hot pipes or a stove. Also, store it in a dry place as dampness may cause rusting of lids and favors mold growth. Light causes some food to lose quality. Glass jars of meat with fat should be protected from light.

Freezing softens food, but unless the freezing cracks the jar or breaks the seal the product will continue to keep.

Provide your home canned foods with ample sturdy shelf space. Build the shelves so the jars are only 2 deep and can be handled easily. If the jars are arranged on the shelves according to the months they are to be used, meal planning will be easier and the use of your canned food will be nicely distributed through the year.

The canned food may be grouped according to use or variety as they are stored and the shelves so labeled. A suggested grouping is as follows: tomatoes and tomato juice; leafy, dark green and yellow vegetables; other vegetables; soup mixtures; meat stock and meat; small fruits; apples, pears, peaches; fruit juices; preserves; jellies, jams, conserves, butters, pickles and relishes; hospitality shelf; baby shelf.

CANNING MEATS

Pork, beef, veal, mutton, lamb, rabbit, chicken, turkey, goose and all other types of meat may be canned successfully at home. Canning meat is easier than canning vegetables as the need for speed is not so great. The jars and the pressure canner used in canning meat are the same as in canning low acid vegetables. There is the same need for cleanliness, accuracy and no delay after the canning has begun.

Canning some meat is usually good food management when home slaughtering is done. Canned meat tastes different from fresh and frozen meat and it takes less time to get it ready to serve. Canned meat is a real help to the person preparing meals on rush days or for unexpected guests. Heart, tongue, soup stock, stew meat, and corned beef may be canned. With our modern methods of preservation no meat or meat products should be wasted or eaten just to keep them from spoiling.

Only healthy, well finished animals should be slaughtered for family meats. The carcass needs to be chilled after slaughtering before you start to can the meat. Chilling makes it easier to handle and gives a better canned product than meat which is canned immediately after slaughtering. Pork should be canned as soon after chilling as convenient, while beef is better if allowed to ripen or age for a week or ten days. Veal will ripen and yet show little discoloration or shrinkage if canned or frozen in 3 or 4 days after slaughtering.

Frozen meat may be canned, but freezing breaks some cell walls, there is some loss of juice, and the canned product will not be of highest quality. If you can frozen meat, do not try to thaw it, but cut or saw it into strips 1 to 2 inches thick, drop into boiling water, simmer until the raw meat color has almost disappeared, then pack and process.

Preparation

One and one-half pounds of meat will usually fill a pint jar or a No. 2 tin can. Only bloody meat should be washed. Wipe other meat with a clean damp cloth. Trim away most of the fat, leaving just enough for flavor. Fat retards heat penetration and changes flavor more quickly than meat. Cut meat in desirable pieces. Do not throw away the bones, but cook them for broth.

The hot pack method of canning is usually preferable for canning all low acid foods including meats and chicken. However, many people prefer the raw pack for meat as it saves stove space and gives a different flavor. Directions for both methods are given. Frying is not a desirable method of preheating as it makes the meat dry and hard and may give an undesirable flavor. Furthermore, fat makes heat penetration more difficult.

Salt is added for flavor. It does not help preserve the meat.

Canned meat not covered with liquid will discolor and lose part of its flavor if stored for several months.

When you begin to can, stay with it until finished. Delay in any step of the process may injure the quality of the canned food. Have all the equipment needed for canning assembled and ready to use before you begin with the food. Cleanliness, speed, and accuracy are very important in canning.

Equipment

Read the manufacturer's directions before you start to use a pressure canner, jar lids or any piece of equipment.

Two-piece lids are recommended for canning meat and all other low acid foods. With this type of lid you do not need to touch the jar after processing, until it has cooled, so there is less likelihood of burns and you probably lose less juice than with other types of lids.

A pressure canner is the practical way to get the high temperature needed to kill the bacteria that cause dangerous spoilage. If a pressure sauce pan is used for processing meat, add 20 minutes to the regular processing time. The longer time is necessary because pressure sauce pans heat and cool more rapidly than the larger pressure canner.

Canning Poultry

Hot Pack

Bone the breast, but leave bone in other meaty pieces. Trim off large lumps of fat. Sort meat into three piles—bony pieces, meaty pieces and giblets.

BONY PIECES: Cover bony pieces with cold water and simmer until the meat is tender and slips easily from the bone.

1. Drain broth into bowl.
2. Skim off fat.
3. Remove meat from bones. Cut into desirable pieces.



4. Put $\frac{1}{2}$ to 1 tsp. salt in a clean jar and pack in pieces of meat to within 1 inch of top of jar.
5. Cover with the broth.
6. Remove air bubbles. Add more broth, if needed.
7. Wipe top of jar and adjust lid.
8. Process at 10 lbs. pressure; pint jars 65 minutes and quarts 75 minutes.

MEATY PIECES: Cover meaty pieces with hot water or chicken broth. Simmer until meat, when cut, shows no pink color at center of piece.

1. Put $\frac{1}{2}$ to 1 tsp. salt in clean jar. Pack second joints and drumsticks, having skin next to glass. Fit breast pieces into center and small pieces where needed, filling jar to within 1 inch of top.
2. Add the broth to cover the meat, using at least $\frac{1}{2}$ cup to a quart. Remove air bubbles. Add more broth, if needed to cover meat, and fill jar to within 1 inch of top.
3. Wipe top of jar and adjust lid.
4. Process at once in the pressure canner at 10 lbs. (240° F.), pint jars 65 minutes and quarts 75 minutes.

Raw Pack—Meaty pieces:

1. Place $\frac{1}{2}$ to 1 tsp. of salt in clean jars and pack in second joints and drumsticks, with skin next to the glass. Fit breast into center and fit in smaller pieces, filling to within 1 inch from top of jar.
2. Set these filled open jars in a large kettle with hot water about 2 inches below top of jars. Cover the kettle and let boil slowly until meat in jar is steaming hot, (170° F at center) and medium done (75 minutes).
3. Press down meat, add broth or boiling water if needed to fill the jar to 1 inch from top. Remove air bubbles and add more liquid if needed.
4. Wipe top of jars and adjust lid.
5. Process at once in a pressure canner at 10 lbs., pint jars 65 minutes and quarts 75 minutes.

Cold Pack—Meaty pieces:

1. Use only quart jars. Place $\frac{1}{2}$ to 1 tsp. salt in jar and pack second joints and drumsticks, with skin, next to glass. Fit breast pieces into center and fill in with smaller pieces.
2. Add boiling water or broth to fill in all air spaces and to cover meat, leaving 1 inch head space.
3. Wipe top of jar and adjust lid.
4. Process at once in a pressure canner at 10 lbs. for 80 minutes.

Giblets—Because of flavor it is best not to can liver with the other meats. Livers are best frozen or used fresh. Hearts and gizzards can well. Since they are usually canned in small quantity, directions are given for pint jars only.

1. Cover hearts and gizzards, cut in desirable pieces, with hot water or broth and cook until medium done.

2. Place $\frac{1}{2}$ to 1 tsp. salt in clean pint jar. Add hot giblets, filling to within 1 inch of top.

3. Add broth to cover giblets. Work out air bubbles, adding more broth if needed to fill jar to within 1 inch of top.

4. Wipe top of jar and adjust lid.

5. Process at once in a pressure canner for 75 minutes at 10 lbs. pressure, (240° F.).

Rabbit—Separate bony and meaty pieces, pack and process as you do chicken.

Canning Beef, Veal, Pork, and Lamb

Hot Pack

1. Put pieces of meat in shallow pan, only one layer thick. Add just enough water to prevent sticking. Cover tightly and simmer until medium done, stirring occasionally so meat will heat evenly.

2. Put $\frac{1}{2}$ or 1 tsp. salt into a clean jar.

3. Pack hot meat quickly.

4. Add the hot broth, filling jar to 1 inch from top. Use boiling water if there isn't enough of the broth.

5. Run thin, narrow bladed knife down in jar and work out air bubbles. Add more liquid if necessary to cover meat and fill jar to 1 inch from top.

6. Wipe top of jar and adjust lid.

7. Process at once in the pressure canner at 10 lbs. pressure, 240° F., pints 75 minutes and quarts 90 minutes.

Raw Pack

1. Put $\frac{1}{2}$ or 1 tsp. salt into the clean jar.

2. Pack jar with the raw pieces of meat, leaving 1 inch head space.

3. Place jars on a rack in a large kettle and fill with warm water to about 2 inches from top of jars. Cover, heat and keep just below boiling until the meat in the jars is steaming hot and medium done (center of jar is 170° F.). This takes about 75 minutes.

4. Press down meat, add liquid, if necessary, to cover meat and fill jar to 1 inch from top.

5. Wipe top of jar and adjust lid.

6. Process at once in a pressure canner at 10 lbs. pressure (240° F.), pint jars 75 minutes and quarts 90 minutes.

Soup Stock

1. Cover bony pieces of chicken or other meat with lightly salted water and simmer until the meat is tender and comes easily from the bone. Don't cook too long or fast, as soup may lose its flavor.

2. Skim off excess fat. Remove all pieces of bone. Do not strain out meat or sediment.

3. Pour boiling hot stock into clean jar to ½ inch from top.
4. Wipe top of jar and adjust lid.
5. Process at once in pressure canner at 10 lbs. pressure (240° F.), pint jars 20 minutes and quarts 25 minutes.

STANDARD FOR JUDGING YOUR JARS OF CANNED MEAT

	A*	B	C
<i>Package</i>			
Clean, sealed, standard jars, properly labeled, 2 piece lid.			
<i>Pack</i>			
Proper head space.			
All spaces should be filled, but not crowded.			
Size of pieces suitable to use.			
Liquid to cover the product, no excess.			
<i>Meat</i>			
Good quality.			
Properly trimmed without excessive fat, bone or skin			
No defects, signs of spoilage or foreign matter.			
Color as nearly that of a standard cooked product as possible. Bright, clear, no discoloration or lack of color.			
Looks tender, not stringy, soft or coarse grained.			
<i>Fat and Liquid</i>			
Enough fat and liquid for flavor, but not an excess.			
*A—Excellent; B—Good; C—Fair. Check in correct column.			

Care of the Canned Meat

After the jars of canned meat have thoroughly cooled, remove the rings, clean, and test carefully for leaks. If any jar has leaked, use for food or can it all over again. Heat the meat all through, pack and process again using a different lid, jar, or both.

APPROXIMATE YIELD OF CANNED MEAT AND POULTRY FROM FRESH*

	Am't of Fresh Meat Needed for 1 Qt.
Pork Loin.....	5 to 5 ½ lbs. untrimmed
Beef Rump.....	5 to 5 ½ lbs. untrimmed
Beef Round.....	3 to 3 ½ lbs. untrimmed
Chicken, with bone.....	4 ½ to 5 ½ lbs., dressed and undrawn
Chicken, without bone.....	7 to 8 lbs., dressed and undrawn

*This table will help you figure how many jars of meat you will get from a given quantity of fresh meat.

Label each jar, so you will know the kind of meat, method used in canning, and the date. Store the jars in a cool, dry dark place.

Before opening a jar of canned meat, look for any signs of spoilage as

a bulging lid, gas bubbles, odor, or leakage. When opening the jar, there should be suction of air, not a spurting of gas or liquid. Any off odor or color are danger signals. The metal lid may be dark due to the sulphur from the meat. This is not harmful. The broth over canned meat may or may not be jellied, depending on the pieces of meat canned.

It is possible for meat to contain the poison that causes botulism without showing signs of spoilage. When you open home canned meat or other low acid foods, immediately smell it. If there is any "off" odor, burn it. If there is no "off" odor, heat these foods *before tasting* and smell as they heat. Heat makes the "off" odor or beginning spoilage more noticeable.

For salads and sandwiches heat, cool, and then use home canned meat.

PREPARED FOODS FROM THE FREEZER

Most of the space in your home freezer or locker will be taken up with meat, chicken and out of season fruits and vegetables. But there may be a time when there is a little space which could well be used for freezing some prepared or precooked foods.

Frozen soups, baked beans, cakes, pies and sandwiches can be a great convenience.

You need to decide whether the prepared foods you freeze will save you time when you need it. Some foods take more time to get ready for serving after they are frozen than they do when mixed up fresh and cooked or baked. Some use more heat than freshly prepared dishes and so are less economical. Most homemakers freeze prepared foods for a few weeks or one to three months.

Prepared Foods Good for Freezing

Cooked foods good for freezing: (1) are seasonable, (2) take a long time to prepare or to cook, (3) use a large variety of ingredients, (4) require a certain skill and care in preparation, (5) require only a little more work to prepare in quantity than in small amounts, (6) need only slight thawing before they are served, or (7) are good after a reasonable storage period.

Pepper, onion, cloves and synthetic vanilla may become strong and bitter during storage and any foods which contain fat, even in small amounts, are likely to become rancid in long storage.

To prevent a change in color of foods that are red, white or yellow, add an acid food—as orange, lemon juice, or sour cream, if you can do so without spoiling the flavor.

Freezing changes the consistency of some foods—hard cooked egg white becomes tough, raw and fried foods lose their crispness, rice becomes mushy, mayonnaise separates, and cream and cheese sauce tend to curd.

Proper utensils, sanitary handling, quick cooling, careful packaging and immediate freezing are important for all foods.

In packaging, use moisture vapor-proof paper or containers to prevent the food from drying out. Exclude as much air as possible in packaging, by drawing, or pressing the wrapping material close to the food.

Packages should be in small containers to allow quick freezing and later quick thawing. Put into one package the amount to be used at one time. Allow space at the top for the expansion of liquid foods. Label each package with date, contents and any other detail you wish to record for future observation.

Fruit Sauces

Apple, rhubarb, peach and apricot sauces are especially successful when frozen. Use your favorite recipe and make as for fresh use. It is well to omit any spices until serving time. Chill and then package the sweetened cooked sauce in suitable containers. Remove air bubbles, seal and place in freezer.

Purees

Some fruits and most berries can be pureed without any cooking. But some persons prefer to add $\frac{1}{4}$ cup sugar to each quart and heat them enough to melt the sugar. The light colored fruits such as peaches and apricots need to be heated to prevent darkening of the fruit. Heat only to boiling point and use only enough water to keep from scorching. Cool quickly and put through a sieve, mill or strainer to give a fine even puree. Adding ascorbic acid ($\frac{1}{2}$ teaspoon per quart) will help hold a bright color. When cold, package and freeze.

Purees for infants and others on low-residue diets may be prepared and frozen when the fruits or vegetables are in season and their quality is best.

Pies

In general, pies that are frozen unbaked have a flakier and more tender crust and a fresher flavor than the pies baked before freezing and they require less time and fuel. Custard and cream pies do not freeze satisfactorily. Fruit and mince pies freeze very well. Meat, chicken and pumpkin freeze fairly well.

Prepare in the usual way but do not cut any openings in the upper crust. This helps to prevent discoloration of fruit fillings and the loss of flavor and aroma.

Peach and apple fillings discolor readily. Steaming the sliced fruit for 1 or 2 minutes or sprinkling lemon juice or ascorbic acid solution on the filling may help prevent darkening.

Pies made from frozen fruits are as good as those made from fresh fruit. Thaw the fruit just enough to spread, do not use extra sirup. Wrap and freeze immediately.

When ready to use, remove the freezer wrap and cut openings in the upper crust. Place in a preheated oven and bake at the correct temperature for that kind of pie and allow 15 to 20 minutes extra time.

If you have baked an extra pie or two, cool thoroughly, wrap and freeze. To use, unwrap and place the frozen pie in a moderate oven (325°-350° F.) for 30 to 40 minutes, long enough to defrost and heat through. If only thawed at room temperature and not heated in the oven, it is like a day-old pie.

How To Package Pies

Wrap each pie in moisture vapor-proof package material before or after baking. Stack them right side up in the freezer. Pies can be frozen in glass, metal or paper pie plates with metal rims and later baked in them. Thick paper plates are not satisfactory as they are poor conductors of heat and leave a raw doughy undercrust after baking.

Cakes

Cakes made from frozen batter may have smaller volume but there is the pleasing aroma of a baking cake at the time you serve. Too, the batter takes less space in the freezer, so which method you use is largely a matter of convenience.

All cakes with fat may be frozen either baked or unbaked. There are certain advantages and disadvantages with each method. There seems to be less chance for failure if cakes are frozen after baking but they lose crispness of crust during freezing and thawing. Fruit cakes freeze successfully and may even improve in flavor with storage. Fruit cakes are baked, cooled completely, wrapped and frozen. When needed, thaw in their original wrappings at room temperature.

Butter Cakes Baked Before Freezing

To freeze baked spiced, chocolate, molasses, fruit or plain cakes, prepare and bake according to your best cake recipe. Remove the cake from the pan and cool to room temperature. Cooling prevents moisture from collecting on the inside of the package and hastens freezing. Cut into amounts that can be used up at one time, as frozen baked cakes tend to lose freshness after thawing. Wrap in cellophane and seal. Freeze quickly. To further protect, put into the pan in which it was baked or into a box or wrap in locker paper.

To thaw baked butter cakes, leave in the original wrappings and thaw at room temperature, or if unfrosted in a slow (300° F.) oven. If the oven is too hot or the cake is in the oven for too long a time the cellophane may scorch and give the cake a disagreeable flavor and odor. If the wrappings are removed before thawing, moisture collects on the surface and the crust may become soggy. Use all cakes as soon as thawed.

Butter Cakes Frozen As Batter

To freeze batters for loaf or layer cakes, prepare the cake batter following your most successful recipe. Pour the batter in the pan in which it is to be baked. If you use a tin pan, line it with waxed paper to prevent rust from

the moist cake batter. Wrap in moisture vapor-proof cellophane and seal. Freeze quickly. The batter may lose some gas with careless slow handling.

To bake batters frozen in the pan, completely thaw at room temperature. Then bake as usual. If only partially thawed, humps tend to develop during baking.

Sponge Cakes Baked Before Freezing

Angel and sponge cakes are too delicate to be successfully frozen as a batter. It is more practical to freeze the egg whites.

Sponge cakes should be thoroughly baked and thoroughly cooled before they are packaged. Freeze immediately after packaging.

Thaw the baked angel and sponge cakes in original packaging in the refrigerator or at room temperature.

Frostings and Fillings

Cakes may be filled and frosted before freezing. Part of a frosted cake which might become stale before eaten by a small family may be frozen and served fresh a week or so later.

Not all frostings stand freezing. Confectioner's sugar frostings if made with quite a little fat freeze very well. The cooked candy type of frostings freeze well if they contain some honey or corn sirup to keep them moist so they will not crack and crumble. Fillings made of fruit, nuts, fudge, and panocha are frozen satisfactorily. Do not use soft frostings as they stick to the wrappings, and boiled and seven-minute frostings become frothy. Cream fillings should not be frozen, but added after the cake has been thawed.

Bread and Rolls

Freezing is a practical method to keep bread from becoming stale. Baked rolls and bread are some of the most successful foods to freeze. Dough for rolls may also be frozen for short periods of time, but freezing dough for bread does not seem to be as satisfactory. There is the tantalizing odor of baking rolls at serving time but the rolls will be smaller and the crusts dry and tough. Rolls often flatten out rather than actually rising. Half-baked rolls freeze well.

To freeze, prepare and bake the fresh rolls and bread as usual. As soon as cool, wrap well, seal, and freeze quickly.

Baked bread thaws quickly because it contains little moisture. Thaw it in its original package at room temperature. If the frozen bread is thawed unwrapped, moisture will form on the crust and it will be wet and lose all crispness.

To thaw rolls, remove from the freezer and heat in their wrappings in a 400°F. oven for about 5 to 10 minutes, depending upon the size of the rolls. Too long heating will dry them out. Also rolls may be thawed at room temperature in their wrappings and then reheated in a bun warmer or hot oven to freshen them.

Quick Breads

Quick breads may be frozen before or after they are baked but it is usually preferable to freeze after baking. The dough has a short storage life and the baked loaf may be smaller in volume and less tender.

Loaf breads are hard to slice when hot and they freeze well after baking. Waffles may be baked, frozen and reheated in a toaster for serving. Freezing muffin batters and baking powder biscuits does not save the homemaker much time.

Doughnuts are satisfactory if frozen after they are fried. Use your favorite recipe. Cool them well and stack one on another in an airtight container or wrap them separately in metal foil. Reheat them in a 400° F. oven, but do not let them dry out.

Prepared Combination Dishes

Meat dishes served with a sauce as swiss steak, meat balls, chop suey, meat loaf, stuffed peppers, scrapple, veal bird, chow mein, and raviola are satisfactory when frozen after they are cooked. If the cooked meat or poultry is not covered with a sauce, it may become powdery in texture and dry and have some change in flavor after a few months storage.

For meat stews, use your favorite recipe but omit white sauce and any vegetables which do not freeze successfully after being cooked. Potatoes, for example, tend to become soft and watery. Do not add milk and it is better to add the thickening after the frozen food is reheated.

Vegetables such as succotash, and Harvard beets frozen in their sauce are fairly successful as are French fried potatoes. To reheat, spread them out in a baking sheet and place in a 400° F. oven for 5 or 6 minutes.

Soups

Vegetable, split pea, navy bean, chicken noodle soup, meat stock, and chowder are quite good after they have been frozen. Soup concentrates are better to freeze than the soup itself. Pour soup in refrigerator trays, cover and freeze. Remove from the tray and wrap each block separately or put them in a suitable container and into the freezer. One block added to a cup of hot milk or hot water would then make a good serving of soup.



Frozen Pre-cooked Meals

Five things to remember when you plan entire meals to be precooked and frozen.

1. Choose a menu that will have color and give variety in shapes, texture and flavors.
2. Since each food should be ready to serve at the same time, choose

foods and size and shapes of servings with about the same reheating time.

3. Pack all foods solidly to keep out air. Sauces may be used to advantage with meat and some other foods to fill air spaces. Chill, package and freeze promptly, and reheat quickly.

4. Use the meal within the safe storage limit of the most perishable food.

5. When you reheat food in the oven, cover it partially (aluminum foil). Exceptions are fried potatoes which need to be completely uncovered or they lose their crispness and become soggy.

Frozen Plate Meals

A plate meal usually includes a meat, a starchy vegetable and one other vegetable. For interest and variety, add frozen cranberry sauce, spiced pears or pickled peaches. These can be thawed while the meat and vegetables are being heated. Freeze the individual servings of meat and vegetables in the desired shaped molds. Package each item snugly and put all together in one package. It is not practical to freeze and store food on a plate as the uneven shapes make proper packaging almost impossible and it is wasteful of freezer space.

Use your imagination in planning frozen meals. Follow the basic rules in preparing each dish. When thawing the frozen foods, add a personal touch in seasoning or a garnish in serving and the menu becomes definitely yours.

Freezing Suggestions for Special Occasions

Use your ice cube trays for freezing:

1. Sweetened lemon juice for a tall glass of cold lemonade.
2. Concentrated soup stock—for a quick cup of hot soup.
3. Triple strength coffee or tea for a glass of iced coffee or tea.
4. Flowers frozen in fruit juice or water for pretty punch bowls.
5. Ice cubes to take on picnics.

Whip cream or dried skimmed milk, flavor and sweeten. Drop in nice sized amounts on a cookie sheet. Freeze and remove from cookie sheet to a plastic bag. Seal and use for "dollops" on desserts.

Assemble a group of frozen foods or party refreshments for a complete meal. Wrap together and label, as fried chicken, peas, rolls and raspberries. You might like to have some 30-, 60-, or 90-minute meals.

Have special trays or baskets in your freezer for snacks, church supper dishes or a lunch box corner.

Storage Time in Freezer

The exact length of storage life for the different prepared or precooked foods has not been determined. The homemaker can experiment with her own products and decide for herself what is the best storage time. By re-

USING YOUR HOME FOOD FREEZER

Keep an accurate record of the food you put in and mark each time a package is used. Record date packages were put in and when the last package was used.

Meat	No. of Packages		Date	Other Foods	No. of Packages		Date
	Put In	Used			Put In	Used	
Beef				Vegetables			
Tender Roasts				Asparagus			
Tender Steaks				Lima Beans			
Less-tender				Snap Beans			
Roasts				Broccoli			
Less-tender				Cauliflower			
Steaks				Corn			
Stew Meat				Greens			
Hamburger				Okra			
				Peas			
				Peppers			
				Parsley			
				Rhubarb			
				Others			
Pork				Fruits			
Roasts				Blackberries			
Chops				Cherries			
Ribs				Cranberries			
Sausage				Crushed Fruit			
Cured Ham				Gooseberries			
Cured Shoulder				Mixed Fruits			
Cured Bacon				Peaches			
Lard				Raspberries			
				Strawberries			
				Others			
Chicken				Prepared Foods			
Roasters				Breads			
Fryers				Cakes			
Broilers				Cookies			
Meaty Pieces				Casserole			
Others				Dishes			
				Doughnuts			
Turkey				Fruit Drinks			
Whole Turkey				Ice Cream			
Turkey Pieces				Nuts			
				Pie			
				Puddings			
				Rolls			
				Sandwiches			
				Snacks			
Fish				Soups			
Rabbit				Special Diets			
Others				Others			

moving the packages of the same food at different intervals, it can be found when the food begins to lose its quality. Foods deteriorate and lose goodness with storage. While some foods have a long storage life, it is not an economical use of freezer space. Use frozen foods while they are still "excellent" not just "good."

GIFT PACKAGES OF PRESERVED FOODS

Most people appreciate a gift that is chosen or made especially for them. Many people have definite likes and dislikes regarding preserves, relishes, pickles, and they like them sweet or sour, tart, mild or spicy. If you are away from home, it is pleasant to receive a few jars of your favorite foods. Packed in an Ozark basket, such foods make an attractive and useful gift. You can dress up each jar with a paper doily around the top or a lacquered lid and a gay picture seal, or gay paper along with the label on the jar. Often magazines and newspapers carry information on gift wrapping. From the colored pictures you can get ideas for using the material you have. Pine, cedar and other evergreen material as well as cut paper and cellophane will help hold the jars apart and make the package more attractive.



Gift packages of preserved foods might include the following:
 A half pint jar of blackberry jam, strawberry preserves, grape conserve, corn relish and beet pickles.
 A pint jar of spiced crab apples, bread and butter pickles, canned chicken, and raspberries.
 A quart jar of canned peaches, green beans, tomatoes, and apple sauce.

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE AND THE UNITED STATES
 DEPARTMENT OF AGRICULTURE COOPERATING

J. W. BURCH, Director, Agricultural Extension Service
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4-H RECORD

Food Preservation IV

(To be used with 4-H Circular 122)

Name _____ Age _____

Address _____ County _____

Name of 4-H Club _____

Name of Club Leader _____

Project Leader _____

Jr. Project Chairman _____

Club meetings attended during year _____ Project meetings held _____

Number attended _____ Number of jars canned or frozen in completed project _____

Number of Food Preservation demonstrations given at:

Club meetings _____, Project meetings _____, County meetings _____

District meetings _____, State meeting _____.

Number of times participated in Judging work in:

Project meeting _____, County _____, District _____, State _____

Interstate _____.

Number of exhibits made in:

Community _____, County _____, District _____, State _____,

Interstate _____

Participated in:

County Achievement _____, District Round-up _____, State Contest

Program _____, National Contests _____, County Fair or Show _____,

District Fair _____, State Fair _____, Interstate Show _____, Marketing

Days _____, County Camp _____, District Camp _____, State Camp _____,

National Camp _____, National Club Congress _____, News stories

published _____, Radio programs participated in _____.

Served on _____ Standing Committee.

4-H Activity selected by club for this year _____

Brief statement of club achievements in club activity, health and recreation

Year _____

Work Done

Complete at least 3 out of these 5 requirements:

1. Plan a food preservation budget for your family.
2. Can at least 3 jars of meat or chicken.
3. Freeze at least 3 kinds of food that can be used in the same meal.
4. Make at least 5 jars of different sweets. (Jellies, preserves, etc.)
5. Freeze at least 2 kinds of baked products.

Check When Completed	Total Amount Done

RECORD OF OTHER WORK DONE THIS YEAR IN FOOD PRESERVATION

1. _____
2. _____
3. _____
4. _____

STORY