

Home Freezing of Foods

in North Dakota

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NORTH DAKOTA STATE UNIVERSITY



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HOW FREEZING PRESERVES FOOD

All fresh foods contain bacteria and other living organisms that cannot be seen by the naked eye. These organisms grow very rapidly at ordinary room temperature, causing food to spoil.

Chemical substances called enzymes are also present in food and cause changes in color, flavor, taste, texture and food value.

The object of preserving food is to prevent or control the activities of both enzymes and bacteria so that food may be safe to use and have a high food value. To do this, it is necessary to slow down the chemical action of enzymes in foods by scalding or cooking before packaging for freezing. By freezing at below zero temperatures the bacteria stop growing. However, these bacteria tend to multiply rapidly again as soon as frozen foods are thawed. Freezing preserves the food by stopping the growth of bacteria and checking enzymatic action.

WHY FREEZE FOOD!

1. Freezing retains more food or nutritive value than any other method of food preservation. However, the retention of this nutritive value depends largely on the treatment of food before freezing, the storage temperature, and on the method of cooking. Short cooking of frozen foods saves food value.

Vitamin A - little or no loss during freezing and cooking.

Vitamin B - some losses of thiamin occur during scalding and cooking. The losses are about the same as when cooking fresh foods.

Vitamin C - no loss takes place during actual freezing, but loss occurs during blanching and cooling of vegetables. Vitamin C is easily destroyed by exposure to air and in the cooking water. There is less loss if food is stored at 0° F.

Minerals - some loss if much cut surface is exposed during scalding and cooking.

2. Freezing is quicker and easier than canning. A few foods do not freeze well and others are as flavorful canned as frozen.
3. Frozen foods resemble fresh foods in color, texture and flavor.
4. Save money by buying foods in large quantities and in season when market price is low.
5. Waste due to spoilage can be eliminated.
6. Better meals with more variety in less time will result.

7. Save time by baking in large quantities to store as needed.
8. Shopping trips can be cut down to minimum.
9. School lunches can be prepared for a week in advance.
10. Always ready for the unexpected guest with frozen foods.

USING THE HOME FREEZER

The days are past for using the home freezer as a miniature locker plant for storing meat such as a quarter of beef or the winter's supply of chicken for long time storage. Today the freezer is no longer a hoarding place but a small grocery store where everything you need for a meal can be had by just opening the freezer door.

Thoughtful planning of frozen food possibilities will mean for the homemaker:

1. A greater saving in money
2. A greater saving in time
3. A greater saving in effort

and will make meal planning and preparation a pleasure and meals less monotonous.

Use Your Home Freezer For:

1. Freezing and storing fresh foods

Buy fresh foods when quality is high and prices are attractively low. Sometimes, wholesale cuts of meat and other foods can be purchased in quantities and packaged and processed for the home freezer by the local locker plant.

Freeze garden fresh vegetables and fruits at the peak of their goodness.

2. For storing commercially frozen foods

If your vegetable garden is not sufficient for your needs or if you haven't a vegetable garden, use commercially frozen vegetables and fruits for winter storage. Watch for bargain prices offered by your local grocer and save money. Ice cream is less expensive in large quantities as is meat etc.

3. For storing cooked and baked foods

Save time, by freezing foods cooked in quantity and foods that otherwise would take long cooking.

Every family has its favorite hot dishes such as meat loaves, Spanish rice, Irish stew, etc., which require long cooking or lengthy preparation. Make up a quantity of such food at one time and package in meal size portions, then freeze and have ready to re-heat in short notice. Having a meal prepared which

can be re-heated by Dad or the children gives Mother satisfaction when she leaves her family for a day's outing knowing that she hasn't neglected them.

If you are a small family you can save time by preparing ready-cooked dinner combinations that can be re-heated all at one time.

For storing baked goods - bake less often but in larger quantities to save time and energy. Eat one pie fresh and store the other two or three. Do this for cakes, cookies and desserts of all kinds.

HOW MUCH STORAGE SPACE WILL BE NEEDED?

Each family will have to figure out the amount of space needed:

1. Estimate the total amount of fruit, vegetables, meat, and home baked products your family will need for 1 year.
2. Decide which foods are to be frozen.

Not all foods freeze well. In general, vegetables that are eaten raw are not suitable for freezing. When frozen they lose their crispness and fresh flavor.

Foods Not Suitable To Freeze

Bananas
Grapes - finished result questionable
Whole tomatoes

Pears - finished result questionable
Celery (raw)
Lettuce
Avocados
Cream pie fillings
Cooked egg whites
Custards
Gelatin desserts
Mayonnaise
Onions - except as seasoning
Peppers - except as seasoning
Potatoes - except when "French Fried"
or
prepared for special dishes

Foods That Freeze Well

Most fresh fruits
Cooked apples
Fresh vegetables (some varieties better than others)
Fresh meat
Poultry
Fish
Cooked foods as:
Bread
Cakes
Fruit Pies
Waffles
Goulashes
Pork and Beans
Stews
Soups
Hash

Uncooked prepared foods as:
Pies, Doughs
Batters - Sandwiches
Eggs - Cheese
Cream - Coconut
Butter - Ice Cream
Cooked Tomatoes

- Determine when and how much food will go into freezer at any one time, such as fruits in summer, vegetables in summer and fall. Only freeze enough to take care of need from one growing season to another. Meat may be bought wholesale or home grown and cut and wrapped at a local plant. To rent a box at the locker plant may be better than using the home unit.

Use these figures for guide in planning:

One cubic foot of space holds
 about 40 lbs. fruit with syrup or about 25 to 30
 lbs. vegetables, or 35 to 40 lbs. meat.

One cubic foot of space also holds
 about 40 pt. cartons (standard size). Each pint
 carton holds 4 small servings or 1 lb. frozen fruit with
 syrup or 10 to 12 oz. vegetables.

- Limit the amount of food to be frozen in any one day for best results to: (From J.D. Winter's University of Minnesota chart).

<u>Size of Freezer</u>	<u>Capacity</u> lbs.	<u>Pounds Per Day To Freeze*</u>
9 cubic feet	315	30 to 35
11 cubic feet	385	35 to 45
15 cubic feet	525	45 to 55
22 cubic feet	770	65 to 75

*Amounts based on room temperature of 70 to 75° F. Reduce quantity by 1/2 if temperature of room is 90° F. or higher.

- Place food to be frozen near walls or in coldest section of freezer - store at 0° F. Keep a record of all foods frozen with date it was frozen - check off from record what is used daily.
- Using every bit of freezer space all the time represents the greatest savings on food costs. Arrange in the freezer so food to be used first is in one section or near the top. Keep most recently frozen foods in the bottom or back of the freezer. Wire baskets are excellent for keeping foods separated according to safe storage periods or as to kinds of food. Fill chest type freezers no higher than 1 inch from the top.

THE WAY FOOD IS WRAPPED OR PACKAGED FOR FREEZING WILL DETERMINE THE QUALITY

Kinds of Packaging Material

Aluminum Foil is available plain or double (laminated with paper or glassine.) Use plain foil of .0015 gauge or higher for freezing. Look for the number on the package when you buy it. Aluminum foil is a good wrapping for irregular shaped foods and foods that are to be defrosted in the oven. Use the drug store method of wrapping. Plain foil needs no tape or twine because the ends can be folded and rolled tightly in place.

Disadvantages of foil are it is expensive and hard to handle but it is a most reliable wrap.

Pliofilm is a transparent rubber film that is flexible and easy to use. Comes by the yard in rolls or in bags. A pliofilm or plastic bag may be made form-fitting by dipping the bag containing the food (all but the top) in nearly boiling water and twisting the top of the bag to close it.

Sharp bones puncture pliofilm. It is not good for fat foods as it does let some air in causing rancidity.

Cellophane is a clear wrap--use only that with code letter M. Breaks easily at cold temperatures. Cellophane laminated paper is best.

Polyethylene is a plastic film material that is excellent for most foods and comes by the yard in rolls or in bags of various sizes. This is a stronger material than pliofilm but can be punctured by sharp bones. Check all plastic bags for leaks before using by placing water in them. Not good for fat foods as it lets air through, causing rancidity.

Saran is a comparatively new plastic film, transparent, odorless, effectively moisture-vapor-proof and clings tightly to the foods.

Laminated wrappings are made of paper pressed to polyethylene, glassine, cellophane or thin foil, making two thicknesses. This is excellent for moisture-proof wrappings or as bags. Some types are too stiff to be useful.

Waxed Paper Some waxed papers or bags are too stiff to be given a close tight wrap and often two layers are needed to give protection comparable to one layer of foil or polyethylene.

Containers Glass jars, tin cans (coffee cans), waxed cartons or tubs, plastic jars and boxes, rigid aluminum containers, are plentiful and all good.. Milk cartons are not recommended because they are not sanitary as the wax cannot stand hot water and bacteria mixes with the wax.

When packing allow space for expansion at the top of rigid cartons or boxes.

References Used:

- "Into the Freezer and Out" by Tressler and Evens
- "Home Freezing for Everyone" by Alkine and Schuler
- "Home Freezing Foods" by Vera G. Mraz
- "Your Home Freezer" by James D. Winter