

Frozen Food Storage and Care of Your Freezer

A goal of many Alabama families is to own a home freezer. There are many benefits in owning a freezer—if you have the right one for your needs and if you use it correctly.

Keep your freezer well stocked and use the food regularly. Food stored too long increases your overall freezer cost, and your food loses its flavor, color, texture, and nutritive value.

Freezers should be used as “checking accounts” rather than “saving accounts.”

Costs of Frozen Food Storage

Freezer costs include both buying and maintaining the freezer. In addition to the price you pay for the freezer, you need to consider:

1. **Depreciation**—life expectancy of a home freezer is about 20 years.
2. **Repairs**—figure 2 percent of the purchase price.
3. **Electricity**—
 - a) For initial freezing of foods, figure 0.1 kilowatt-hour per pound at 6 cents per kilowatt hour.
 - b) For keeping the freezer at 0 degrees F, figure 2.3 kilowatt-hours per cubic foot per year at 6 percent per kilowatt-hour.
4. **Packaging**—The cost varies, depending on the type of material you use.

Personal habits also affect the cost of operating a freezer. A full freezer uses less energy than one that is partially full. Keeping the door closed and the sides free from ice (on a manual defrost freezer) reduces energy use. This means that you should defrost when $\frac{1}{4}$ inch of ice accumulates on the sides. Also, planning ahead and removing all the food you need from the freezer at one time saves energy.

The features of the freezer also affect the cost of using it. An upright freezer is more expensive to buy and operate than a chest type, but it is easier to clean and use. A frostless freezer is easier to clean but uses more energy than one you defrost manually.

Today, energy-efficient freezers are on the market. Their initial cost may be higher, but they should use less energy and thus be less expensive over the years.

Temperature

Keep the freezer at 0 degrees F or lower. Food that has been correctly prepared, packaged, and frozen will still be of low quality if it is not stored at this temperature. The quality of foods stored for one year at 0 degrees F is better than that of food stored for 5 months at 5 degrees or 2 months at 10 degrees. Nutritive value, color, flavor, and texture are affected when food is stored above 0 degrees F.

The warmest places in a freezer are the basket in a chest-type and the nonfreezing shelf and door shelves of an upright. Put a thermometer in one of these places for 24 hours to check the temperature. If it is not 0 degrees F or below, read your use-care booklet and see if you can regulate the control. Sometimes only a serviceman can regulate the temperature control of the freezer. It is worth a few pennies more to keep the temperature at 0 degrees F for better quality food. Remember, frozen foods are affected by temperature.

Length of Storage

Always use the food that has been stored the longest. The guide on page 2 lists the length of time foods will stay at top quality, appearance, and flavor when stored at 0 degrees F or below.

The times apply only to foods packaged in moisture-vapor-resistant freezer material, and the shorter storage period is better.

Freezer Materials

Use a moisture-vapor-resistant freezer material. This holds moisture and food odors in and prevents stored foods from drying out. Container used in freezers should be those that will not puncture easily nor break at 0 degrees F or below. They should be grease-proof and odorless. Read the labels when buying freezer materials.

Most heavy-duty aluminum foil is not moisture-vapor-resistant; freezer aluminum foil is thicker and is moisture-vapor-resistant. There are different grades of freezer paper, too. Buy the best grade. Use freezer tape, not string, to tightly seal the edges of paper.

Length of Storage for Quality Food

MEATS	Months
Beef	
liver, ground meat	3-4
roasts, steaks.....	6
Lamb	
chops.....	6-9
ground meat	3-4
roasts	6-9
Veal	
cutlets, chops.....	6-9
ground meat	3-4
roasts	6-9
Pork, cured	
bacon.....	less than 1
ham	1-2
Pork, fresh	
chops.....	3-4
roasts	4-8
sausage, liver	1-2
Chicken, Turkey.....	6-12
Duck, Goose, Wild Game.....	3
Giblets of poultry, Turkey, Game	3
Shrimp, Crab meat, Oysters	3
Fish.....	6-9
VEGETABLES	6-12
FRUITS.....	6-12
COOKED FOODS	
Vegetables.....	3
Meats, Sauces, Stews	3
Rolls, Biscuits.....	3
Cakes, Cookies.....	3
Soup	3
UNCOOKED FOODS	
Fruit Pies	6
Sandwiches.....	3 weeks

Use cover boxes with polyethylene freezer bags; otherwise, the bags may be punctured. Cover boxes also help packages to freeze in a uniform shape which makes them easier to stack. Was containers and milk cartons are not satisfactory because they crack at 0 degrees F or below. Glass jars are now available for freezing. Use only those labeled for freezing and follow the manufacturer's recommendations. Coffee cans and similar containers should only be used with plastic freezer bags inside.

Labeling

Label packages to show content, date put in freezer, number of servings or amount, and information needed for cooking or serving. Labeling helps you find the packages you want and helps in using oldest foods first.

Food Inventory

Keep a record of useful information, such as variety of food frozen, how food was prepared for freezer, type of packaging material used, etc. A running inventory will show exactly how much of each kind of food is in your freezer. Here is an example using three main columns.

1. Name of Food	2. Number of Containers Put in Freezer		3. Number Containers Removed	
	Pints	Quarts	Pints	Quarts
Butter Beans	5+7+4+10 (26)	7+2+4 (19)	III I	III
Snap Beans	10+4+5+7 (26)	6+4+5 (15)		

List all vegetables on one page, fruits on another, and meats on another. Also, indicate where each is found in the freezer; for example, in a chest-type freezer: all fruits on the left, meats in the center, vegetables on the right, and cooked foods in the basket. List meats as packages rather than pints or quarts. Attach a pencil to your record sheet and keep both handy—perhaps near the freezer or at your desk in the kitchen.

Storing

Separate all the different kinds of food and the different varieties of the same food. Remember, foods stored the longest should be on top or in front so they will be used first.

Put unfrozen food in the coldest part of the freezer so it will freeze quickly. Quick freezing forms small ice crystals which do not break down cell structure in food. This helps prevent soft or flabby food.

Allow some space between packages so that cold air can circulate around each of them. Store them close together after completely frozen. A rule of thumb is never add more than 2 or 3 pounds of unfrozen food per cubic foot of freezer space. For example, in a 20-cubic-foot freezer, never put more than 40 to 60 pounds or pints of unfrozen food in at one time. It usually takes from 12 to 24 hours for food to reach 0 degrees F.

What if the Freezer Stops?

One of the most important things to do is keep the freezer door closed. Food in a fully loaded freezer will usually stay frozen for two days if it was operating at 0 degrees F or below. In a freezer half full or less, food will not last more than a day.

When the freezer stops, the trouble may be in the motor or in the electric circuit. If the motor in an open-type compressor unit is running but there is no refrigeration, check to see if the belt is broken.

If the belt is in place but not moving, it may need tightening. This can usually be done by sliding the motor on its base. However, it is often best to replace the belt since it may have been weakened. Call a serviceman if tightening the belt or putting on a new one does not solve the problem. When a sealed motor is running and there is no refrigeration, the only thing to do is call a serviceman.

If the motor is not operating, be sure it is plugged in properly. The connection may have been broken even though the plug has not fallen out. If the freezer still doesn't start operating, plug in another appliance to see if it will operate. If not, then check the fuse box.

If the power is off, find out how long it is likely to be off. If it will be only a few hours, no precautions are necessary. If you think it may take longer than a day or so to get your freezer back to 0 degrees F, take your food to the local locker plant. Call the locker plant manager first to be sure there is room for your food. Or check with friends for space in their freezers. Wrap food packages in newspapers and blankets or use cardboard boxes. Make the trip quickly.

You can use dry ice. The more dry ice you use, the longer the food will stay frozen. Twenty-five pounds will keep the temperature below freezing for 2 to 3 days in a 10-cubic-foot freezer. Saw or chop dry ice into pieces to fit the storage compartments. Never handle dry ice with bare hands—it may cause burns.

If any food is in the freezing compartment, move it to the storage compartment before adding the dry ice. Put dry ice on boards or cardboard on top of packages, not directly on the packages. Do not open the freezer again unless it is necessary to move food to a locker plant, to put in more dry ice, or until the freezer has been operating for a few hours. If dry ice is used, covering the freezer with blankets will help keep the temperature down. Do not cover air-vent openings.

How long food will stay frozen depends on:

1. **Amount of food in the freezer.** A full freezer will stay cold much longer than a freezer only half full.
2. **Kind of food in the freezer.** A freezer full of meats will stay cold longer than a freezer full of baked food.
3. **Temperature of the freezer.** The colder the freezer was when it stopped, the longer food will stay frozen.
4. **Kind of freezer.** A well-insulated freezer will keep food frozen much longer than one with little insulation.

5. **Size of freezer.** The larger the freezer, the longer the food will stay frozen.

What to Do if Food Thaws

You may safely refreeze food if it still contains ice crystals or if the freezer temperature is below 40 degrees F and has not been at this temperature for longer than 1 to 2 days.

You can refreeze thawed fruit if it still tastes and smells good. Fruit usually ferments when it starts to spoil. A little fermentation will not make fruit dangerous to eat but may spoil its flavor. You can also use the thawed fruit for cooking and baking or making jams, jellies, and preserves.

Be careful when you refreeze thawed meats and poultry. They are unsafe to eat when they start spoiling; therefore, carefully examine each package. If it still contains some ice crystals, it may be safe to refreeze. If the color or odor of thawed meat or poultry is poor or questionable, get rid of it—it may be dangerous!

Tests show you can refreeze beef, veal, and lamb that show no sign of spoilage. The meat's juices may be reabsorbed if you rewrap the package and put it upside down in the coldest part of the freezer.

Be careful when you refreeze vegetables, shellfish, and cooked foods. Often, you can't tell by the odor whether they have spoiled. Bacteria multiply rapidly in these foods, even at 40 degrees F. So don't refreeze any that are completely thawed. If ice crystals are still in the food, you can refreeze it if you do so immediately. Refreezing is usually safe, but the quality of the food may be lost. Always mark packages that have thawed and been refrozen. If you are ever in doubt about frozen foods that have thawed, never refreeze—never eat.

To refreeze food, turn the adjustable temperature control to its coldest position. The freezer will run continuously and the food will freeze more quickly. Put the warmer packages against the refrigerated surface, if possible, but place them so air can circulate around them. If the freezer is too full, move some of the colder packages to the refrigerator; then return them gradually to the freezer. After the food is well frozen (0 degrees F), turn the temperature control back to where you normally keep it set.

Defrosting the Freezer

A frostless freezer does not require defrosting, but it should be cleaned occasionally. Follow the instructions in your use-care booklet.

Defrost a conventional freezer when frost gets $\frac{1}{4}$ inch thick over a large area of the refrigerated surface. Frost may be scraped off from time to time

using a plastic scraper or wooden spoon. Never use a sharp-edged tool which might damage the lining finish. If possible, defrost when there is not much food in the freezer. Methods of defrosting may vary with type of freezer, but the following general directions should be useful.

To get the food as cold as possible before defrosting, set the temperature control at its lowest setting for a few hours or overnight; then unplug the freezer. Take food from the freezer and put it in boxes heavily lined with newspapers. Put several layers of newspapers over the boxes if they have no tops.

Put clean cloths in the bottom of the freezer to catch frost and water. Slowly pour cold tap water along the sides. Scoop up frost and water and wipe up the remainder. Remove ice from the surface as it loosens.

Hot water should not be used in some freezers. Refrigerant pressure would build up in the evaporator and make restarting the compressor difficult.

To clean freezer, wash the inside with a solution of 1 tablespoon of baking soda and 1 quart of lukewarm water. Then wipe with a clean damp cloth. Wash the door gasket with soap and water; then rinse. Clean the outside with warm soapy water or use a special wax polish for enamel surfaces. Dry the freezer thoroughly, inside and out.

Plug in the freezer again and set the control at its coldest position. Let it run a half hour to bring the temperature down before putting the food back in. Wipe or scrape each food package quickly to remove any frost or moisture and replace it in the freezer. When returning the food, take an inventory and place the older packages at the front or top. Mark them for first use. Keep the control at the coldest position until the freezer is 0 degrees F or below in the warmest part.

Odor in Freezer

If food has spoiled in the freezer because of a power failure or some other reason, undesirable odors can develop. Remove the food and wash the side of the freezer with 1 tablespoon of baking soda in a quart of tap water or with 1 cup of vinegar in a gallon of tap water. If odor is still there, use activated charcoal. You can buy it at a drugstore. Activated charcoal is extra dry and absorbs odors more quickly than cooking-type charcoal. Unplug the freezer. Put charcoal in pans or on paper in the bottom of the freezer and close the door. Leave the charcoal in the freezer for several days. If the odor remains, put in new charcoal. When the odor is gone, rinse and dry the inside of the freezer. Turn it to its coldest temperature and, in an hour or so, put the frozen food back in the freezer.

When an odor gets into the insulation, write the company for any suggestions they might have in solving this problem.

Conclusion

Proper use and care of a freezer can make it one of the most useful appliances in your home. It will allow you to take advantage of sales by buying large amounts at low sale prices. It will allow you to shop less often, saving you time and money. And it will allow you to prepare foods in advance for emergencies and for your own convenience. Take care of your freezer.



EFNEP-191

Evelyn F. Crayton, *Extension Foods and Nutrition Specialist*, Professor, Nutrition and Food Science, Auburn University. Originally prepared by **Isabelle Downey**, former *Home Economist—Food Preservation*.

For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

Issued in furtherance of Cooperative Extension work in agriculture and home economics, Acts of May 8 and June 30, 1914, and other related acts, in cooperation with the U.S. Department of Agriculture. The Alabama Cooperative Extension System (Alabama A&M University and Auburn University) offers educational programs, materials, and equal opportunity employment to all people without regard to race, color, national origin, religion, sex, age, veteran status, or disability. ECP, ?M, **Reprinted March 2001**, EFNEP-191