
service in ACTION

Food storage for safety and quality¹

Pat Kendall and Nancy Dimond²

no. 9.310

Quick Facts

Foods vary in the degree of temperature and amount of moisture they need to retain quality in storage.

Stock only the kind and amount of food you can store properly to retain high quality and nutritive value.

Use a thermometer to check that the refrigerator is at 35 to 40 degrees F and the freezer at 0 degrees F or below.

Food Selection

Buy food from reputable dealers, with a known record for safe handling. Select dated products only if the "sell by" or "use by" date has not expired. While these dates are helpful, they are reliable only if the food has been kept at the proper temperature during storage and handling. Although many products bear "sell by" or "use by" dates, product dating is not a federal requirement.

Select products labeled "keep refrigerated" only if they are stored in a refrigerated case and are cold to the touch. Frozen products should be solidly frozen and packaged precooked foods should not be torn or damaged.

Avoid cross-contamination when purchasing foods. Place raw meat and poultry in individual plastic bags to prevent meat from contaminating foods that will be eaten without further cooking. Position raw packages of meat and poultry in your shopping cart so juices cannot drip on other foods.

Introduction

Use fresh, perishable foods soon after harvest or purchase. If storage is necessary, it is important to maintain the proper temperature and humidity. Even under proper storage conditions, however, freshness and nutritive value can be lost if foods are stored too long.

Signs of spoilage that make food unpalatable but not a bacterial hazard are the rancid odor and flavor of fats caused by oxidation, slime on the surface of meat, and the fermentation of fruit juices due to yeast growth. Off-odors in foods and a sour taste in bland foods are signals that can indicate dangerous bacterial spoilage. However, food can be high in bacteria count without such signals.

This information provided by:

-
1. Service in Action 9.310, Cooperative Extension, Colorado State University. Published June 1991. Reviewed October 1992. Copyright 1992. For more information, contact your county Cooperative Extension office.
 2. Pat Kendall, Colorado State University Cooperative Extension food science and human nutrition specialist and professor; Nancy Diamond, senior, food science and human nutrition.
-

Shop for perishables last. Keep refrigerated and frozen items together so they will remain cold. Place perishables in the coolest part of your car during the trip home. Pack them in an insulated container with ice or ice pack if the time from store to home refrigerator is more than one hour.

Food Storage

To retain quality and nutritive value, stock only the kinds and amounts of food you can store properly. Proper storage means maintaining a clean refrigerator and freezer. Avoid overcrowding the refrigerator. Arrange items so cold air can circulate freely. To reduce dehydration and quality loss, use freezer wrap,

freezer-quality plastic bags, or aluminum foil over commercial wrap on meat and poultry that will be stored in the freezer for more than two months.

The following **short** but safe time limits will help keep refrigerated food from spoiling or becoming dangerous to eat. The time limits given for frozen foods are to maintain flavor and texture. It is still safe to eat frozen foods that have been stored longer.

Food Storage Tables

Table 1, Table 2, Table 3, Table 4, Table 5, Table 6, Table 7, Table 8, and Table 9 are adapted from *Refrigerator/Freezer - Approximate Storage Times*, Karen Penner, Kansas State University Cooperative Extension Service, 1990, and USDA publications.

Table 1. Storage times for breads, pastries and cakes.

Product	Refrigerator (35-40 degrees F)	Freezer (0 degrees F)	Comments
Unbaked rolls and bread	3-4 days	1 month	Longer storage inactivates yeast, weakens gluten.
Partially baked cinnamon rolls	1-2 weeks	2 months	
Baked quick breads	*	2 months	
Baked muffins	*	6-12 months	
Baked breads (no preservatives)	2-3 weeks	2-3 months	Store in refrigerator to inhibit mold growth.
Waffles	1-2 days	1 month	
Unbaked fruit pies	1-2 days	2-4 months	
Baked fruit pies	2-3 days	6-8 months	
Pumpkin or chiffon pies	2-3 days	1-2 months	
Baked cookies	2-3 weeks	6-12 months	
Cookie dough	3-4 days	3 months	
Frosted baked cakes	*	1 month	
Unfrosted baked cakes	*	2-4 months	
Angel cakes	*	6-12 months	
Flour: white or whole wheat	6-8 months	12 months	

* Not necessary to refrigerate unless product cannot be used within 4-5 days or time recommended on package.

Table 2. Storage times for dairy products.

Product	Refrigerator (35-40 degrees F)	Freezer (0 degrees F)	Comments
Butter	2-3 months	12 months	Freeze in original carton, overwrap with plastic freezer bag
Buttermilk	1-2 weeks	NR	Check date on carton. Will keep several days after date.
Cheese: cottage, ricotta cream cheese	5-7 days 2 weeks	1 month 1 month	Freezing changes texture of soft cheeses Becomes crumbly when frozen; can be used in cooking when creaminess is not important.
Natural, aged cheeses (cheddar, swiss, brick, gouda, mozzarella, etc.)--large pieces, packaged or wax coated; slices or opened packages;	2-3 months 2-3 weeks	6-8 months	Natural and processed cheeses can be frozen. Defrost in refrigerator--cheese will be less likely to crumble. Use soon after thawing.
Parmesan, Romano (grated)	12 months		
Pasteurized process cheese	3-4 weeks	6-8 months	
Coffee whitener (liquid)	3 weeks	See package	
Cream, light or half & half (UHT processed-unopened)	1 week 4 weeks	3-4 weeks	
(UHT processed-opened)	1 week		
Cream, heavy or whipping	1 week	NR	Whipping cream will not whip after thawing. Whipped cream may be frozen and stored for 1-2 weeks.
Dip, sour cream: commercial	2 weeks	NR	
homemade	3-4 days	NR	
Margarine	3 months	12 months	Leave in original foil and carton, overwrap in plastic bag for freezer storage.
Milk:			
evaporated, opened	3-5 days	1-3 months	Freezing affects flavor and/or appearance; use for cooking.
fluid whole or low-fat	1 week	1-3 months	Same as for evaporated.
reconstituted nonfat dry	1 week	1-3 months	
sweetened, condensed, opened	3-5 days	1-3 months	
Sour cream	2-3 weeks	NR	Sour cream will separate if frozen
Whipped topping:			
in aerosol can	3 weeks	NR	
prepared from mix	3 days	NR	
frozen carton (thawed)	2 weeks	NR	
Yogurt	1 month	NR	Yogurt will separate if frozen.

NR: Not recommended.

Table 3. Storage times for eggs and products containing eggs.

Product	Refrigerator (35-40 degrees F)	Freezer (0 degrees F)	Comments
Eggs, in shell, fresh	3 weeks	NR	
Eggs, fresh yolks or whites	4 days	12 months	To freeze, break eggs out of shell; stir until yolk is well blended with white (or other yolks). Add small amount of salt, sugar or corn syrup to improve keeping quality.
Eggs, in shell, hard-cooked	1 week	NR	Decorated Easter eggs: if you intend to eat them, keep refrigerated. If eggs are at room temperature for more than 2 hours, do not eat them.
Eggs, liquid pasteurized eggs or egg substitutes, opened	4-5 days	1 year	
Egg-containing products; Custards, custard sauces, puddings, custard-filled pastries and cakes: Canned puddings, opened:	1-2 days 1-2 days	NR NR	

NR: Not recommended.

Table 4. Storage times for fruits.

Product*	Refrigerator 35-40 degrees F	Freezer 0 degrees F	Comments
Apples	1-3 weeks	8-12 months	
Apricots, cranberries	1 week	8-12 month	
Avocados	3-5 days	4-6 months	
Bananas	1-2 days, unpeeled	4-6 months	Peel, dip in lemon juice, tray freeze; store in freezer bag.
Berries/cherries	1-2 days	8-12 months	
Grapes, peaches, pears, plums, and rhubarb	3-5 days	8-12 months	
Canned fruits, opened	3-5 days	1-2 months	Texture will be softer after freezing. Refrigerate in glass or plastic to avoid metallic taste.
Citrus fruits	3 weeks	4-6 months	Wrap cut surfaces to prevent loss of Vitamin C.
Dried fruit, uncooked	6 months	12 months	
Dried fruit, cooked	3-5 days	4-6 months	
Juices: canned, bottled, frozen concentrate	1 week	12 months	Transfer canned juice to glass or plastic container after opening.
Melons	1 week	8-12 months	Wrap cut surfaces to prevent loss of Vitamin C and spread of odors.

* Freeze **all fruits** in moisture- and vapor-proof containers. Follow recommended procedures in SIA 9.331, *Freezing fruits*.

Table 5. Storage times for meats.

Product	Refrigerator 35-40 degrees F	Freezer 0 degrees F	Comments
Fresh			
Roasts: beef	3-5 days	6-12 months	Meats may be left in the supermarket packaging for refrigerator storage or for very brief freezer storage. For frozen storage beyond two weeks, rewrap in moisture- and vapor-proof wrap or freezer bags.
veal or pork	3-5 days	4-8 months	
lamb	3-5 days	6-9 months	
Steaks, beef	3-5 days	6-12 months	
Chops: pork, veal	3-5 days	4-6 months	
lamb	3-5 days	6-9 months	
Ground beef, stew meat, ground pork, turkey, veal, lamb	1-2 days	3-4 months	
Sausage: pork, beef, turkey	1-2 days	1-2 months	
Bratwurst, fresh	2 days	2-3 months	
Bratwurst, precooked	5-7 days	2-3 months	
Variety meats (tongue, liver, brains, heart, kidneys)	1-2 days	3-4 months	
Cooked			
Canned meat, opened	2-3 days	NR	
Cooked meat and meat dishes	3-4 days	2-3 months	Quickly refrigerate all cooked meats and leftovers, use as soon as possible. Cut large roasts into halves to cool in refrigerator.
Gravy and meat broth	1-2 days	2-3 months	Fats tend to separate in homemade gravies, stews, and sauces, but usually recombine when heated. Cool leftover gravy and broth quickly, in shallow containers, in the refrigerator.
Processed and Cured			
Bacon	7 days	1 month	
Corned beef, in pouch with pickling juice	5-7 days		Keep packaged meats in original package. For best quality, use within one week of "sell by" date.
Corned beef, drained and wrapped		1 month	
Frankfurters	7 days*	1-2 months	Frozen, cured meats lose quality rapidly; use as soon as possible.
Ham: whole	7 days	1-2 months	
half	3-5 days	1-2 months	Small pieces of canned ham (opened) may be frozen for 4-6 weeks.
canned (unopened)	8-12 months	NR	
Luncheon meats	3-5 days*	1-2 months	
Sausage, smoked	7 days	1-2 months	
Dry and semi-dry sausage	2-3 weeks	1-2 months	

NR: Not recommended.

* Storage time after vacuum-sealed package is opened. Unopened package may be kept two weeks or according to date on package.

Table 6. Storage times for poultry.

Product	Refrigerator 35-40 degrees F	Freezer 0 degrees F	Comments
Fresh			
Chicken and turkey (whole)	1-2 days	12 months	
Chicken (pieces)	1-2 days	9 months	
Turkey (pieces)	1-2 days	6 months	
Duck and goose (whole)	1-2 days	6 months	
Giblets	1-2 days	3-4 months	
Cooked			
Canned poultry, opened	1 day	NR	Quick-cool meat and broth separately in shallow containers,. Add ice cubes to concentrated broth to speed cooling and to aid fat removal.
Cooked poultry dishes	3-4 days	4-6 months	
Pieces (covered with broth)	1-2 days	6 months	
Pieces (not in broth)	3-4 days	1 month	
Fried chicken	3-4 days	4 months	

Table 7. Storage times for wild game and seafood.

Product	Refrigerator 35-40 degrees F	Freezer 0 degrees F	Comments
Wild Game			
Venison	3-5 days	6-12 months	
Rabbit, squirrel	1-2 days	12 months	
Wild duck, pheasant, goose (whole)	1-2 days	6 months	
Seafood			
Canned fish, seafood, opened	1 day	NR	Store in coldest part of refrigerator. Do not use if liquid is frothy.
Clams, oysters (shucked) and scallops	7-9 days	3-4 months	
Crab	7 days	2 months	
Shrimp	3-5 days	6-12 months	
Lobster (shelled or not)	3-7 days	6-12 months	
Fresh water fish, cleaned	3-5 days	6-9 months	
Fillets: cod, flounder, haddock, pollack (lean):	2-3 days	4-6 months	
mullet, ocean perch, sea perch, sea trout, striped bass (fatty):	1-2 days	2-3 months	
Salmon steaks	3-5 days	2 months	
Cooked fish	3-4 days	1 month	
Smoked fish	1-2 weeks	4-5 weeks	

Table 8. Storage times for vegetables.

Product	Refrigerator 35-40 degrees F	Freezer* 0 degrees F	Comments
Asparagus	2-3 days	8-12 months	
Beans, green or wax; celery	1 week	8-12 months	
Beets, cabbage, carrots, turnips	1-2 weeks	8-12 months	
Broccoli, Brussels sprouts	1 week	8-12 months	
Cauliflower	1 week	8-12 months	
Corn, in husks	1-2 days	8-12 months	
without husks	1-2 days	NR	
Cucumbers	1 week		
Lettuce, other salad greens	1 week	NR	Store in bag or lettuce keeper.
Mushrooms	1-2 days	8-12 months	Do not wash before refrigerator storage.
Okra	3-5 days	8-12 months	
Onions, green	3-5 days	NR	
Onions, mature	1-2 weeks	3-6 months	
Peas, lima beans, unshelled	3-5 days	8-12 months	Store unshelled in refrigerator until used.
Peppers	1 week	8-12 months	
Radishes	2 weeks	NR	
Tomatoes: Fresh, ripe	5-6 days	8-12 months	Refer to SIA 9.341, <i>Canning tomatoes and tomato products.</i>
Canned, open	1-4 days		

NR: Not recommended

* Blanch fresh vegetables and freeze in moisture- and vapor-proof materials. Refer to SIA 9.330 *Freezing vegetables.***Table 9. Storage times for miscellaneous perishable items.**

Product	Refrigerator 35-40 degrees F	Freezer 0 degrees F	Comments
Baby food	2-3 days	See comment	Store covered. Do not feed baby from jar. Reheat only enough for one feeding. Freeze homemade baby food in ice cub trays, covered, use in 2-4 weeks.
Soups, stews	2-3 days	4-6 months	
Sandwiches	2-3 days	1 month	
Casseroles	1-2 days	1 month	
Ground spices	6 months*	6-12 months	Can be stored in cupboard.
Candies	6 months	6 months	Chocolates may discolor.
Salad dressings, opened	6 months	NR	

NR: Not recommended

* Refrigeration is not necessary, but will help keep flavor fresher.