

KEEP YOUR FOOD FROM SPOILING

KEEP STORED FOODS SAFE

Got extra food or leftovers? Stretch your food dollars and keep the food safe to eat as long as possible.

Why Food Spoils

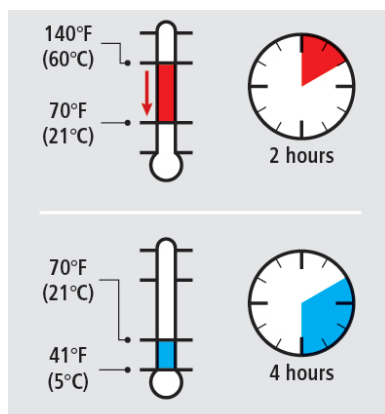
Foods spoil due to the growth of microorganisms (bacteria, yeasts, and molds) and/or the activity of enzymes naturally present in the food. The growth of microorganisms and the activity of enzymes are influenced by moisture, temperature, and presence of oxygen.

Food Safety

Foodborne pathogens grow most rapidly between 40°–140°F, sometimes doubling in number in as little as 20 minutes. This range is called the food safety Danger Zone.

To keep food out of the Danger Zone:

- Never leave food out of refrigeration over **2 hours**. If the temperature is above 90°F, the limit is 1 hour.
- **Keep hot food hot** — at or above 140°F. Place cooked food in chafing dishes, pre-heated steam tables, warming trays, and/or slow cookers.
- **Keep cold food cold** — at or below 40°F. Place food in containers on ice.



When In Doubt, Throw It Out

- Most bacteria that cause foodborne illness are odorless, colorless, and tasteless.
- Never taste food that looks or smells strange to see if it can still be used.

Practical Food Storage Tips

Start storing it right **as you buy it**.

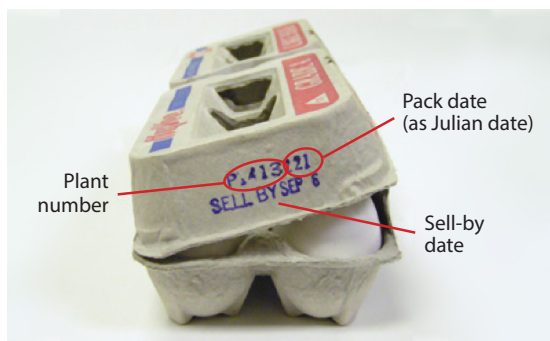
- Get what you can eat in a reasonable amount of time. (*Make a list and stick with it!*)
- Check expiration dates before purchasing food.
- Put cold/frozen foods in your cart last.
- Bring insulated bags or an ice chest to bring cold and frozen foods home, especially in the summer.
- Put food away as soon as you get home, starting with refrigerated and frozen foods.

Understand Packaged Food Dates

Manufacturers provide sell by/use by/expiration dates to help consumers decide when food is the best quality to eat; it does not indicate if food is unsafe to eat. With the exception of infant formula, properly stored pre-packaged food is safe to eat until there are signs of spoilage.

Sell by date: This date tells the store how long to display the product for sale. You can safely eat the food after the sell-by date.

Use by date: This is the recommended shelf life for best flavor or quality. You can safely eat the food after this date; the quality may not be as high as if it were fresher, but it's safe to eat. The only exception is infant formula or baby food—do not purchase or use after its “use by” date.



Expiration date: This is the last date the product should be used for best quality. Yeast and baking powder have expiration dates.

LEAVE IT ON THE COUNTER?

The most common foods people tend to leave on the counter (or stove) are fresh fruits and fresh vegetables, leftovers and frozen food.

Remember the Danger Zone temperature range of 40°–140°F? That's the most favorable temperature for bacterial growth and includes room temperature in our kitchens.

Fresh Fruits & Vegetables

Store the following whole fresh fruits and vegetables on the counter (out of direct sunlight) for best taste. (*Once you cut them, put them in the refrigerator.*)

- Apples (less than 7 days old), bananas, grapefruit, lemons, limes, mandarins, oranges, persimmons, pineapple, pomegranates, watermelon
- Basil (in water), cucumbers, eggplant, peppers, pumpkins, tomatoes, winter squashes

Leftovers

At room temperature you can safely leave food on the counter for up to two hours.

After two hours? Toss it. Why? Because bacteria doesn't usually affect the taste, smell, or appearance of a food so you can't tell if it's dangerous to eat.

Thawing Food

As soon as food begins to defrost and become warmer than 40°F, any bacteria that was in the food before freezing can begin to multiply. Never thaw food at room temperature or in

warm water. Even though the center of a package may still be frozen as it thaws on the counter or in the warm water, the outer layer of the food is in the Danger Zone, between 40°–140°F.

Always thaw food in the refrigerator at 40°F or less, in cold running water less than 70°F, or in the microwave if you'll be cooking or serving it immediately.

KEEP IT IN THE CUPBOARD?

Canned food has been heat processed to kill any foodborne pathogens present, making them safe to store at room temperature.

Store dry, shelf-stable food in the cupboard. Dry staples don't have the moisture needed for foodborne pathogens to grow and cause spoilage.

If the label doesn't say to refrigerate or freeze the product, you can keep in in the cupboard. Store garlic, onions, potatoes and sweet potatoes in a well ventilated area in the cupboard.

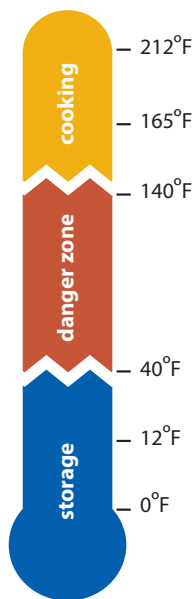


Keep it Closed

The darkness of a closed cupboard door helps keep food quality high because light shining through clear containers causes flavors to deteriorate more quickly.

Keep the containers sealed after opening or put boxes or their contents in a plastic container. Sealed containers help keep food quality and safety high.

- Sealed containers keep insects out. Open packages are an invitation to insects to feast and to lay eggs. The food is for you, not them.
- Sealed containers keep moisture in the air out of the food. Ever wonder why crackers lose their crispiness? The crackers start to rehydrate from the natural moisture in the air. (Got soft crackers? Put them on a



cookie sheet at 425°F for a few minutes to restore crispness.)

Keep it Cool

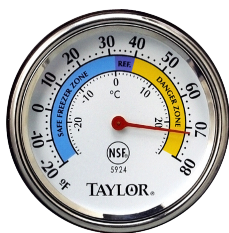
Cooler temperatures help preserve food quality. Store food away from the oven, stove, hot pipes and refrigerator exhaust. If possible, store food in a cupboard out of direct sunlight to reduce the cupboard's internal temperature.

Keep it Clean

Crumbs on shelves and in corners invite insects and mice. Feed your family, not the pests.

PUT IT IN THE FRIDGE?

Refrigeration protects food short-term from spoilage because it slows the growth of micro-organisms and activity of natural enzymes.



Refrigeration Tips

- Keep the internal temperature between **34°–40°F**. Use a **refrigerator thermometer** to ensure the temperature stays below the Danger Zone.
- Keep enough **open space** to allow the cold air to circulate and do its job of chilling the food. Avoid over packing the fridge.
- Use **air-tight containers** to keep moisture and odors in. You don't want to eat leftover pumpkin pie that smells like onion!
- Store raw and thawing **meats on a plate** at the bottom of the fridge to keep it from dripping on and contaminating other food.
- **Clean up spills** on shelves and at the bottom of the fridge that would otherwise provide a place for bacteria to grow.
- **Cool down foods** before putting them in the fridge. (*Hot food heats up everything around it.*) Speed up the cooling process by putting leftovers in shallow containers. Put a clean frozen plastic water bottle in a pot of hot food to cool it.

Refrigerated Fruits & Veggies

Apples (older than 7 days), apricots, berries, cherries, grapes, artichokes, asparagus, green beans, beets, broccoli, cabbage, carrots, cauliflower, celery, green onions, herbs (not basil),

leafy veggies, mushrooms, radishes, spinach, summer squashes, sweet corn

Refrigerator Storage Times

- For best food quality, eat or freeze fresh produce, meat and leftovers within several days.
- **Know what's in there!** Eat leftovers so they don't go to waste. If it looks or smells bad, toss it. **Don't risk food poisoning.**



FREEZE IT IN THE FREEZER?

Freezing slows down the enzymes in fruits, vegetables and meats that cause them to ripen and then decay.

Freezing Tips

- Freeze foods at **0°F or lower**.
- Use a **freezer thermometer** to ensure your freezer is cold enough.
- Freeze foods **as soon as they are cooled**, packed and sealed.
- Water in food freezes and expands creating ice crystals, which rupture cell walls of fruits and vegetables, making them softer when thawed. Large ice crystals do more damage to food cells and cause softer, mushier textures. **Keep the temperature consistent and freeze the food quickly** to minimize the size of ice crystals.
- **Do not overload your freezer with unfrozen food.** Overloading slows down the freezing rate, and foods that freeze too slowly may lose quality.
- For rapid freezing, set the temperature to **-10°F 24 hours in advance** of adding containers to the freezer.

- Leave a little **space between new containers** so air can circulate freely. Stack tightly after frozen.

Freezer Containers

Freezer burn happens when moisture in food evaporates and freezes. Use freezer safe containers, which are thicker than regular baggies and plastic containers; they'll keep the air out to reduce moisture evaporation and freezer burn.

Look for the snowflake on the bottom of plastic containers—they'll keep the air out and the moisture in!

Use a straw to suck the air out of a freezer bag as you seal it. Or submerge the bottom part of a freezer bag in water to force the extra air from the bag. Keep enough space at the top of the container to allow for expansion with frozen liquids.

REFERENCES

- McCurdy, S. M., J. Peutz, and G. Wittman. 2009. Storing food for safety and quality. University of Idaho, PNW 612, <http://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/pnw612.pdf>.
- National Center for Home Food Preservation website, <https://nchfp.uga.edu/>.
- University of California. Food storage. UC Food Safety website, http://ucfoodsafety.ucdavis.edu/Food_Storage/.
- USDA. Food storage and preservation. Nutrition.gov website, <https://www.nutrition.gov/shopping-cooking-and-food-safety/food-storage-and-preservation>.

IMPORTANT SAFETY NOTE

Research on food preservation is ongoing, and recommendations may change. Make sure your information is current. Always follow up-to-date, tested guidelines and recipes from reliable sources.

LOCAL CONTACT

For more information, contact the University of California Cooperative Extension office in your county. See your telephone directory for addresses and phone numbers, or visit <http://mfp.ucanr.edu/Findus>.

ACKNOWLEDGMENT

Keep Your Food from Spoiling was originally created by Sue Mosbacher, UCCE Master Food Preserver Program Coordinator for UCCE Central Sierra.

It is the policy of the University of California (UC) and the UC Division of Agriculture & Natural Resources not to engage in discrimination against or harassment of any person in any of its programs or activities (Complete nondiscrimination policy statement can be found at <http://ucanr.edu/sites/anrstaff/files/215244.pdf> . Inquiries regarding ANR's nondiscrimination policies may be directed to John I. Sims, Affirmative Action Compliance Officer/Title IX Officer, University of California, Agriculture and Natural Resources, 2801 Second Street, Davis, CA 95618, (530) 750-1397.
