Getting to Know Your Refrigerator

Proper storage techniques are the key to longer lasting fruits, meats, and vegetables.

BY RAQUEL PELZEL

Although we don't often think about it, every refrigerator has hot, cold, and humid spots. Together they create a complex food storage matrix inside a basic three-shelf refrigerator. You can make the temperature flux in your refrigerator work to your advantage by learning a few facts about storing fruits, vegetables, and meats. Of course, conditions inside individual refrigerators do vary somewhat. But experts agree on certain general trends in terms of which areas are warmer or cooler. We spent some time verifying what the refrigeration experts told us, and when we were finished we had a much better idea of how best to use a refrigerator. Follow the tips and guidelines shown here to keep your meat, dairy, and produce fresh and flavorful.

REFRIGERATOR TEMPERATURE BASICS

To verify the information we gathered from refrigeration experts, we hooked up a test kitchen refrigerator to a piece of equipment called a chart scan data recorder. The recorder was connected to a laptop computer as well as several temperature monitors placed in strategic locations on the shelves and drawers inside the refrigerator. The refrigerator was then closed and left undisturbed for 24 hours while the interior temperatures were monitored.

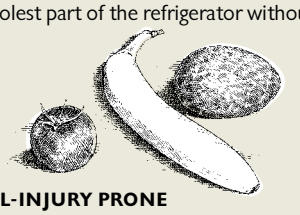
Keeping in mind that a refrigerator goes through many cooling cycles throughout a 24-hour period (that is, at times the temperature may be well above or below 34 degrees Fahrenheit, the optimal temperature for a home refrigerator), our results provided some interesting information. For example, the butter compartment was not the warmest spot in the fridge, as we had expected. Instead, the middle shelf on the door and the front portion of the bottom cabinet shelf registered the highest readings—all the way up to 43 degrees. Not a place where you would want to store your milk or eggs, each of which should be kept at 40 degrees or below. The meat compartment remained the coolest area of the refrigerator (on average, 33 degrees), making it perfect for storing what it is supposed to store: meat.

If you'd like to find the hot and cold spots in your home refrigerator, you can purchase a couple of inexpensive refrigerator temperature gauges (available at most kitchenware stores) and place them on the top, middle, and bottom shelves of your refrigerator, recording the temperature every couple of hours. Generally, though, you can expect your readings to follow the trends shown in the diagram on page 17.

ILLUSTRATION: JOHN BURGOYNE

THREE CATEGORIES OF FRUITS AND VEGGIES

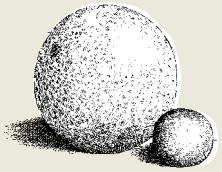
When it comes to refrigeration, produce can be divided into three basic categories: items that should not be refrigerated at all, those that should be refrigerated at a moderately cool temperature, and those that can be stored in the coolest part of the refrigerator without injury.



CHILL-INJURY PRONE

These items should not be refrigerated. If they are, they could be subject to dehydration, internal browning, or internal and external pitting.

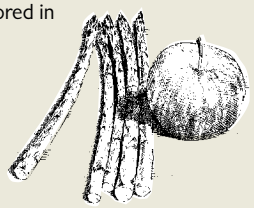
- tropical fruits (mangoes, pineapples—may be refrigerated up to two days when fully ripe)
- avocados
- tomatoes
- bananas
- pickling cucumbers



CHILL-INJURY SENSITIVE

These items should not be stored below 37 degrees Fahrenheit.

- any snap beans
- berries
- citrus fruits (grapefruit, limes, oranges)
- melons
- fresh corn on the cob



NOT PRONE TO CHILL INJURY

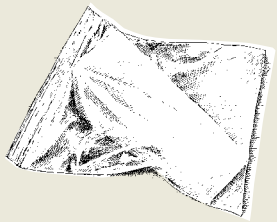
These items can be stored at the refrigerator's coldest temperature without injury (provided the temperature does not freeze the item).

- lettuces
- other leafy greens
- apples
- asparagus
- broccoli

REFRIGERATOR STOR-

Storing Meat

Storing meat on a rimmed baking sheet helps keep refrigerator shelves sanitary and allows other food items, such as fruits and vegetables, to be stored on the same shelf without risk of cross-contamination.

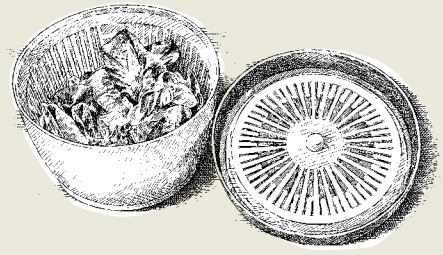


Storing Cheese

Because cheese should not be exposed to too much oxygen, it's best to wrap it first in parchment paper and then in foil. Store the wrapped cheese in the crisper or in an airtight plastic bag or container.

Storing Greens

To prevent bacterial growth, greens must be completely dried before being stored. If you own a salad spinner, store your washed and dried greens in it with a bit of water in the bottom to create a humid environment. (The water should not touch the greens.)



HOW LONG WILL IT KEEP?

BEEF	
steaks, roasts	3–5 days
ground	2 days
defrosted	2–3 days
cooked	2–3 days
LUNCHMEATS	
sliced to order	3–5 days
prepackaged	1 week
POULTRY	
fresh, whole	2 days
fresh, pieces	2 days
defrosted	2 days
cooked	2–3 days
PORK	
fresh chops, roasts	3 days
smoked ham, bacon	2 weeks, after opened
FISH AND SEAFOOD	
fresh	1–2 days
cooked	3–4 days
bisques, chowders	1–2 days
fresh crab, in shell	2 days
other fresh shellfish	1 day

WHERE TO STORE WHAT

TOP SHELF, FRONT
TEMPERATURE: moderate
- eggs in the carton
- butter stored in a butter dish

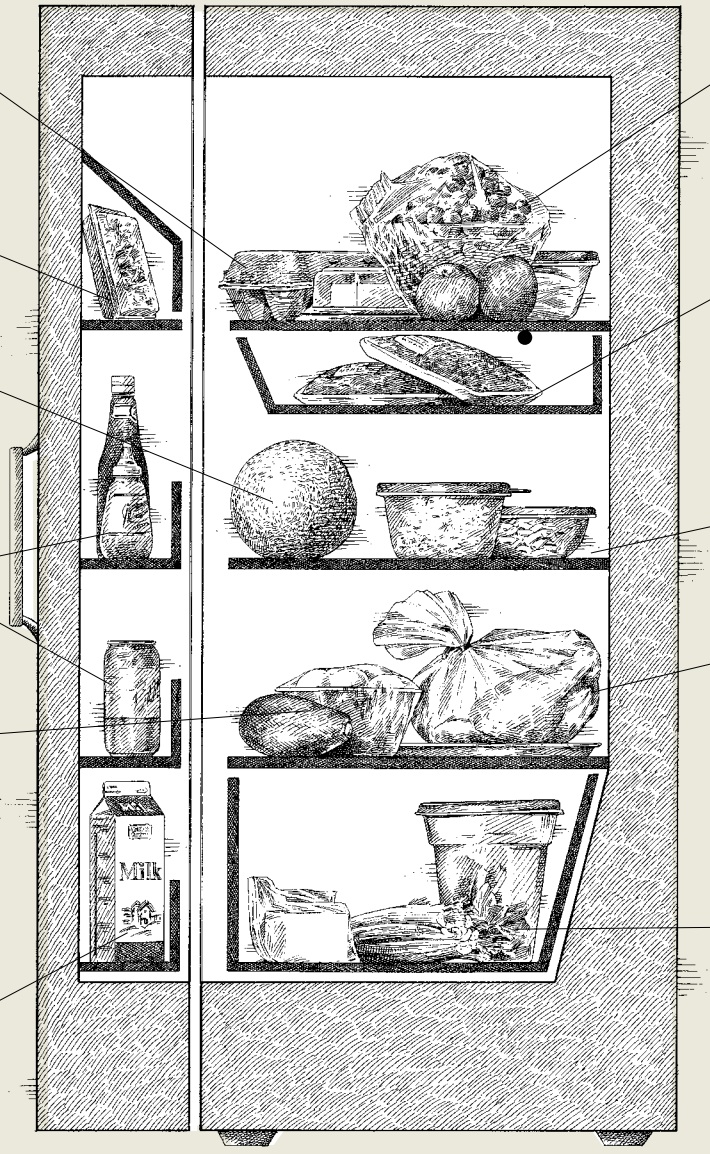
DOOR, BUTTER COMPARTMENT
TEMPERATURE: moderate
- herbs

MIDDLE SHELF, FRONT
TEMPERATURE: moderate
- chill-sensitive fruits and vegetables, such as melons and beans (green beans, wax beans)

DOOR, MIDDLE COMPARTMENT
TEMPERATURE: warm
- beverages
- condiments

BOTTOM SHELF, FRONT
TEMPERATURE: warm
- chill-sensitive fruits and vegetables, such as subtropical fruits, mushrooms (stored in original packaging or a zipper-lock bag, with air holes), and corn (wrapped in a wet paper bag and placed in a plastic bag)

DOOR, BOTTOM COMPARTMENT
TEMPERATURE: cool
- milk (gallon-sized containers may be stored on the back portion of the top shelf)
- sour cream
- yogurt



TOP SHELF, BACK
TEMPERATURE: cool
- refrigerator-safe fruits, such as apples and grapes
- lunch meats stored in zipper-lock bags

MEAT COMPARTMENT
TEMPERATURE: cool
- ground meat
- chops
- cutlets
- steaks
- chicken parts

MIDDLE SHELF, BACK
TEMPERATURE: cool
- prepared foods and leftovers

BOTTOM SHELF, BACK
TEMPERATURE: cool
- whole birds, roasts wrapped in original wrapper or placed in plastic bags
- fish and shellfish, placed on top of zipper-lock bags of ice inside a deep plastic container

CRISPER(S)
TEMPERATURE: moderate to cool
- leafy greens (completely dried) in a plastic container or salad spinner
- celery
- asparagus
- broccoli
- cheese wrapped in parchment paper and then foil

Are You Really Seeing Red?

If you associate red meat with freshness, you shouldn't. What gives meat its bright color, according to Duane Wulf, professor of meat science at South Dakota State University, is oxygen. "When you buy ground beef in the store, it is bright red on the surface, but when you break the meat up, it is darker in the center," explained Wulf. "This means that the center was not exposed to as much oxygen." This is also why ground meat is more perishable than an intact muscle—a steak, for example.

Furthermore, the packaging of meat in a supermarket or even a meat factory is specifically designed to let oxygen in, transforming the natural purple hue of a muscle to a more desirable red color. But don't get the purple color of fresh unoxygenated meat confused with the brownish-gray color of older meat—this means that the myoglobin (the pigment that makes meat red) has converted to metmyoglobin (meaning that the iron atom in the pigment has lost an electron), which is caused by age and enhanced bacterial activity.

A Rain Forest in Your Crisper

Have you ever wondered how your crisper works, or if it works at all? Steve Benton, general manager and vice president of refrigeration for Maytag, explained that all a crisper or humidity compartment does is allow more or less cold air in through small vents located by the slide control. (If your crisper doesn't have a slide control, it is always at the highest humidity level of which it is capable.) The more cold air that is let in, the less humid the environment. But why do you want to have humidity in your crisper, anyway?

A humid environment provides vegetables with water, without which they would shrivel and rot. But the key is balance. If the humidity is too high, water can build up on the surface of the food, explains Dr. Richard Gladon, professor of horticulture at Iowa State University. The water then condenses, giving fungi and bacteria the incentive to grow, compromising the quality and safety of your food. One way to control this process is to store humidity- and chill-sensitive foods like lettuce, berries, and mushrooms inside the crisper in a refrigerator storage bag that has been punctured. This allows carbon dioxide to escape while still providing moisture for the humidity-sensitive produce.