



FIVE STEPS TO FOOD SAFE FRUIT AND VEGETABLE HOME GARDENING

Food Safety and Your Garden Produce

Increasingly, food borne illness outbreaks are being traced to lettuce, tomatoes, cantaloupe and other raw fruits and vegetables. Most food borne illness is caused by the bacteria, viruses, molds and parasites (*or pathogens*) found on raw produce that is not carefully washed or prepared. Many of these can make you sick. ***These microorganisms are a natural part of the environment and can be a problem whether you choose to use organic or conventional gardening methods.***

It is also possible to get sick from contamination of produce with chemicals such as cleaning solutions, fertilizers, pesticides, and heavy metals (lead) and other chemicals that may be found in garden soil or well water.

FIVE STEPS TO FOOD SAFE GARDENING

Follow the five simple steps listed here and reduce the risk of someone suffering a foodborne illness after eating produce from your home garden.

STEP 1-PREPARE THE GARDEN FOR PLANTING

- Locate vegetable gardens away from manure piles, well caps, garbage cans, septic systems and areas where wildlife, farm animals, or the family pets roam.
- Use compost safely. Compost is the natural breakdown product of leaves, stems, manures and other organic materials-and also a source of pathogens. To be safe for gardening, your compost must reach a temperature of at least 130°F. Check the temperature with a compost thermometer. Do not use any animal waste, including pet waste, meat scraps or dairy product waste into your compost bin.

STEP 2- MAINTAIN THE GARDEN

Water source: Be familiar with the quality and safety of the water source(s) you use in your garden.

- If you get your water from a *municipal or public water system*, you can be sure that it is safe and potable (drinkable).
- Surface water (lakes, ponds, rivers and streams) can be polluted by human sewage or animal waste, fertilizers and pesticides from lawns and farm fields, or chemicals from industry.
- *Ground water* (which is the source for *well water*) is less likely to have microbial contaminants than surface water. If a well is your water source, you need to take a little more care to be sure that it is providing you with safe, clean water.
- Conduct a standard water test at least once a year to determine if your well water meets the standards of the Environmental Protection Agency (EPA).

Animals: Animal waste can be a source of bacteria, parasites and viruses.

- During the gardening season, keep cats, dogs and other pets out of the garden.
- Curtail nesting and hiding places for rats and mice by minimizing vegetation at the edges of your fruit and vegetable garden.
- Do not feed wild animals, even birds, near your garden. Fencing or noise deterrents may help discourage other wild animals.

STEP 3-HARVEST GARDEN PRODUCE

- Use clean, food-grade containers. ***Food-grade*** containers are made from materials designed *specifically* to safely hold food. Garbage bags, trash cans, and any containers that originally held chemicals such as household cleaners or pesticides are not food-grade.

- Use clean gloves (that have not been used to stir compost or pull weeds) or clean hands when picking produce.
- Brush, shake or rub off any excess garden soil or debris before bringing produce into the kitchen.

STEP 4-STORE GARDEN PRODUCE

- If you choose to wash fruits and vegetables before storing, be sure to dry them **thoroughly** with a clean paper towel. (NEVER wash berries until you are ready to eat them.)
- If you choose to store without washing, shake, rub or brush off any garden dirt with a paper towel or soft brush while still outside. Store unwashed produce in plastic bags or containers.
- Keep fruit and vegetable bins clean.
- When washing produce fresh from the warm outdoors, the rinse water should not be more than 10 degrees colder than the produce. If you are washing refrigerated produce, use cold water.
- Fruits and vegetables needing refrigeration can be stored at 40° F or less.
- Fruits and vegetables stored at room temperature (onions, potatoes, tomatoes) should be in a cool, dry, pest-free, well-ventilated area separate from household chemicals.

STEP 5-PREPARING AND SERVING FRESH GARDEN PRODUCE

More often than not, we eat fresh fruit and vegetables raw so we cannot rely on the heat of cooking to destroy pathogens that might be on our lettuce or tomatoes, it is important to prepare raw produce with food safety in mind.

- Always wash your hands first.
- Rinse fresh fruits and vegetables under cool, running, clean water even if you do not plan to eat the skin or rind.
- Never use soap, detergent, or bleach solution to wash fresh fruits or vegetables. These solutions can affect flavor and may not be safe to ingest.
- Avoid cross-contamination when preparing fruits and vegetables. *Cross-contamination* occurs when a clean work surface such as a cutting board or utensil (paring knife) or uncontaminated food is contaminated by dirty work surfaces, utensils, hands or food. Be sure to wash your hands (as well as the knife and cutting surface) before preparing any ready-to-eat foods such as salad, fresh fruit or a sandwich.
- If you have leftover produce that has been cut, sliced, or cooked, store it in clean, air-tight containers in the refrigerator at 40°F or less.

PRESERVING FRESH GARDEN PRODUCE

Canning, freezing or drying fruits and vegetables allows you to enjoy the fruits (or vegetables) of your labor all winter long. Choose and follow recipes and methods that are tested by a United States Department of Agriculture (USDA) endorsed source such as Cooperative Extension.

1. The National Center for Home Food Preservation offers tested recipes and procedures. <http://www.uga.edu/nchfp/index.html>
2. The USDA complete guide to Home Canning. <http://foodsafety.cas.psu.edu/canningguide.html>;
3. Home Canning.com (Ball/Kerr). <http://www.homecanning.com/usa/>

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GARDEN TO TABLE STORING FRESH GARDEN PRODUCE

Fresh fruits and vegetables require different storage methods and can be stored for various lengths of time. Some fresh produce (onions, potatoes, tomatoes) is of better quality when not refrigerated. All storage areas should be clean and dry. Fruits and vegetables stored at room temperature should be in a cool, dry, pest-free, well-ventilated area separate from household chemicals. Keep your refrigerator at 40° F or less. If your refrigerator has a fruit and vegetable bin, use that, but be sure to store fresh produce away from (above) raw meats, poultry or fish.

To wash or not to wash? Even the experts disagree when giving advice on washing garden produce. Some tell you not to wash before storage and some will tell you to wash off any garden dirt before even bringing produce into the home. At issue is this: if you bring in garden dirt on your fresh produce, you may be introducing pathogenic microorganisms into your kitchen—while, if you wash your produce before storage, you run the risk of increasing the likelihood that your fresh produce will mold and rot more quickly.

If you choose to wash produce before storage, be sure to **thoroughly** dry fruits and vegetables with a clean paper towel. If you choose to store without washing, take care to shake, rub or brush off any garden dirt with a paper towel or soft brush while still outside. Never wash berries until you are ready to eat them. Storing fresh produce in plastic bags or containers will minimize the chance that you might contaminate other foods in the refrigerator. Keep your refrigerator fruit and vegetable bin clean.

All stored produce should be checked regularly for signs of spoilage such as mold and slime. If spoiled, toss it out. All cut, peeled or cooked vegetables or fruits should be stored in clean, covered containers in the refrigerator at 40° F or less.

Fruit/Vegetable	Storage method/ time	Tips
Apples	Room temperature: 1-2 days; refrigerator crisper: up to 1 month	Ripen apples at room temperature. Once ripe, store in plastic bags in the crisper. Wash before eating.
Asparagus	Refrigerator crisper: up to 3 days.	Once picked, asparagus loses quality quickly. Wrap the base of a bunch of asparagus with a moist paper towel, place in a plastic bag and store in the refrigerator. Wash before using.
Beans, green or yellow	Refrigerator crisper: up to 3 days	Store in plastic bags. Do not wash before storing. Wet beans will develop black spots and decay quickly. Wash before preparation.
Broccoli	Refrigerator crisper: 3 to 5 days	Store in loose, perforated plastic bags. Wash before using.
Beets, Carrots, Parsnips, Radish, Turnips	Refrigerator crisper: 1 to 2 weeks	Remove green tops and store vegetables in plastic bags. Trim the taproots from radishes before storing. Wash before using.
Berries (Blackberries, Raspberries, Strawberries, Blueberries)	Refrigerator crisper: 2-3 days	Before storing berries, remove any spoiled or crushed fruits. Store unwashed in plastic bags or containers. Do not remove green tops from strawberries before storing. Wash gently under cool running water before using.
Brussel sprouts	Refrigerator crisper: 1-2 days	The fresher the sprouts, the better the flavor. Remove outer leaves and store fresh sprouts in plastic bags. Wash before eating.
Cabbage	Refrigerator for up to 2 weeks.	Store, after removing outer leaves, in perforated plastic bags.
Chard	Refrigerator crisper: 2-3 days.	Store leaves in plastic bags. The stalks can be stored longer if separated from the leaves. Wash before using.
Collards	Refrigerator crisper: 4-5 days	Collards store better than most greens. Wrap leaves in moist paper towels and place in sealed plastic bag. When ready to use wash thoroughly. Greens tend to have dirt and grit clinging to the leaves.
Corn	Refrigerator crisper: 1 to 2 days	For best flavor, use corn immediately. Corn in husks can be stored in plastic bags for 1 to 2 days.
Cucumbers	Refrigerator crisper:	Wipe clean and store in plastic bags. Do not store with apples or

	up to 1 week	tomatoes. Wash before using.
Eggplant	Refrigerator: 1-2 days	Eggplants do not like cool temperatures so they do not store well. Harvest and use them immediately for best flavor. If you must store them, store in a plastic bag in the refrigerator. Be careful as it will soon develop soft brown spots and become bitter. Use while the stem and cap are still greenish and fresh-looking.
Herbs	Refrigerator crisper: 2 to 3 days	Herbs may be stored in plastic bags or place upright in a glass of water (stems down). Cover loosely with plastic bag.
Lettuce, spinach and other delicate greens	Refrigerator crisper: 5 to 7 days for lettuce; 1 to 2 days for greens	Discard outer or wilted leaves. Store in plastic bags in the refrigerator crisper. Wash before using.
Melons: Watermelon, Honeydew, Cantaloupe	At room temperature until ripe Refrigerator: 3 to 4 days for cut melon	For best flavor, store melons at room temperature until ripe. Store ripe, cut melon covered in the refrigerator. Wash rind before cutting.
Nectarines, Peaches, Pears	Refrigerator crisper: 5 days	Ripen the fruit at room temperature, and then refrigerate it in plastic bags. Wash before eating.
Onions (Red, White, Yellow, Green)	Dry onions: Room temperature 2 to 4 weeks; green onions: Refrigerator crisper: 3 to 5 days	Store dry onions loosely in a mesh bag in a cool, dry well-ventilated place away from sunlight. Wash green onions carefully before eating.
Peas	Refrigerator: 2-3 days	The sugar in peas quickly begins to turn to starch even while under refrigeration, so eat quickly after harvesting. Store peas in perforated plastic bags. Wash before shelling.
Peppers	Refrigerator crisper: up to 2 weeks	Wipe clean and store in plastic bags. Wash before using.
Potatoes	Room temperature: 1 to 2 weeks	Store potatoes in a cool, dry, well-ventilated area away from light, which causes greening. Scrub well before cooking.
Summer squash, zucchini, patty pan	Refrigerator: 2-3 days	Wipe clean and store in plastic bags. Wash before eating.
Tomatoes	Room temperature; once cut, refrigerator crisper: 2 to 3 days	Fresh ripe tomatoes should not be stored in the refrigerator. Refrigeration makes them tasteless and mealy. Wipe clean and store tomatoes at room temperature away from sunlight. Wash before eating. (Refrigerate only extra-ripe tomatoes you want to keep from ripening any further.) Store cut tomatoes in the refrigerator.
Winter squashes, pumpkins	Room temperature for curing; then cool, dry storage area for 3 to 6 months.	<p>Most winter squash benefits from a curing stage; the exceptions are acorn, sweet dumpling and delicata. Wipe clean before curing. Curing is simply holding the squash at room temperature (about 70 degrees) for 10 to 20 days.</p> <p>After curing, transfer to a cool (45 to 50°F), dry place such as the basement or garage for long term storage. Do not allow them to freeze. The large hard rind winter squash can be stored up to six months under these conditions. Warmer temperatures result in a shorter storage time. Refrigeration is too humid for whole squash, and they will deteriorate quickly.</p> <p>The smaller acorn and butternut do not store as well, only up to 3 months. Store cut pieces of winter squash in the refrigerator.</p>

References:

- <http://www.urbanext.uiuc.edu/veggies/index.html> Watch Your Garden Grow: A guide to growing, storing and preparing vegetables, University of Illinois Extension
- <http://www.extension.umn.edu/distribution/horticulture/DG1424.html> Tong, Cindy, Harvesting and Storing Home Garden Vegetables, University of Minnesota Extension Service
- http://fruitandvegetablesafety.tamu.edu/Consumers/Safe_Food_Storage.pdf Van Laanen, Peggy and Amanda Scott, Safe Storage of Fresh Fruits and Vegetables, Texas Cooperative Extension System, Texas A&M University System.

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