

Guide to Handling Fresh Produce

Fact Sheet 9.380

Food and Nutrition Series | Food Safety

By E. Shackelton, A. Zander, and M. Bunning*

Fruits and vegetables are the foundation of a healthy diet but their surfaces can harbor harmful microorganisms. To promote health and safety, follow this guide for selecting and handling fresh produce.

Steps to Safer Produce

Have a plan. Colorado produce is harvested for peak quality. To maximize flavor and nutritional value, consume fresh fruits and vegetables within a few days after purchase. Preserve excess produce by freezing, canning, or dehydrating to enjoy in the off-season.

Be diverse. Eat a wide variety of fruits and vegetables to reap their vitamin and phytochemical benefits. This may also help limit exposure to any pesticide residues associated with a particular crop.

Wait to clean. Cleaning produce before storing may promote bacterial growth and speed up spoilage, so it is recommended to wait and rinse fruits and vegetables until just before using. If you choose to rinse before storing, dry thoroughly with clean paper towels.

Store safely. Produce that requires refrigeration should be stored at 35-40°F in vegetable bins or containers on shelves above raw meats, poultry, or seafood to prevent cross-contamination. Storing fresh produce in cloth produce bags or perforated plastic bags will allow air to circulate.

Trim well. Cut away damaged areas and remove torn outer leaves of leafy vegetables before rinsing.

Start clean. Bacteria from the outside of produce can be transferred to the interior flesh during cutting or peeling, so the best approach is to start with clean hands, cutting boards, and utensils before washing and preparing fresh produce.

Cleaning Fresh Produce

No cleaning method completely removes or kills all microbes which may be present on produce, but studies have shown that thoroughly rinsing fresh produce under clean running water is an effective way to reduce the number of microorganisms. Rinsing fruits and vegetables not only helps remove soil, bacteria, and stubborn garden pests, but it can also help remove pesticide residues.

*E. Shackelton, Extension Specialist, A. Zander, Extension Agent, Boulder County; M. Bunning, Extension Food Safety Specialist and Professor, Department of Food Science and Human Nutrition.



Quick Facts

- Fresh fruits and vegetables are an essential and flavorful part of a healthful diet.
- Types of fresh produce vary widely, from root vegetables to delicate berries, and recommended methods of cleaning depend on the type and characteristics of the produce.
- To ensure produce safety and quality, consumers should handle and clean produce properly.
- Following these practical tips can help you safely enjoy the wide variety of fresh fruits and vegetables available in Colorado.
- Use CSU Extension's PRESERVE SMART app/website for tested high altitude recipes and instructions for canning, freezing, drying, and fermenting fruits and vegetables.
<https://apps.chhs.colostate.edu/preservesmart/>



General Cleaning Tips for Fresh Produce

- Under running water, rub fruits and vegetables with your hands to remove soil and surface microorganisms.
- If immersing in water, a clean bowl is a better choice than the sink because the drain area often harbors microorganisms.
- Produce with a hard rind or firm skin may be scrubbed with a vegetable brush.
- Rinse water should be no more than 10 degrees colder than the produce to prevent entrance of microorganisms into the stem or blossom end of the produce.

NOTE: Do not wash fruits and vegetables with soap, detergent or bleach solutions. Many types of fresh produce are porous and could absorb these chemicals, impacting their safety and taste.

- Chemical rinses and other treatments for washing raw produce, usually called fruit and vegetable washes, are often advertised as the best way to keep fresh fruits and vegetables safe in the home.
- The FDA advises against using commercial produce washes because the safety of their residues has not been evaluated and their effectiveness has not been tested or standardized.

Resources

FDA. 2018. Produce: Selecting and Serving it Safely. U. S. Food and Drug Administration, <https://www.fda.gov/food/buy-store-serve-safe-food/selecting-and-serving-produce-safely>.

Fouladkhah, A., & Avens, J. S. (2010). Effects of combined heat and acetic acid on natural microflora reduction on cantaloupe melons. *Journal of Food Protection*, 73(5), 981-984

9.373. Health Benefits and Safe Handling of Salad Greens, <http://extension.colostate.edu/topic-areas/nutrition-food-safety-health/health-benefits-and-safe-handling-of-salad-greens-9-373/>

9.369. Preventing E. coli from Garden to Plate, <http://extension.colostate.edu/topic-areas/nutrition-food-safety-health/preventing-e-coli-from-garden-to-plate-9-369/>

Apples, cucumbers, and other firm produce. Rinse well under running water and scrub with a vegetable brush, including the stem area, before peeling and cutting.

Grapes, cherries and berries. Store refrigerated until ready to use, but discard spoiled or moldy fruit before storing to prevent the spread of spoilage organisms. Rinse gently under cool running water right before use.

Herbs. Rinse by swishing in a bowl of cool water or under running water and dry with paper towels.

Leafy green vegetables. Separate and individually rinse the leaves of lettuce and other greens, discarding the outer leaves if torn or bruised. Immersing leaves in a clean bowl of cool water for a few minutes helps loosen attached soil. Adding vinegar to the water (1/4 cup distilled white vinegar per 1 cup water), followed by a clean water rinse, has been shown to reduce bacterial contamination but may affect texture and taste. After rinsing, blot dry with paper towels or use a salad spinner to remove excess moisture.

Melons. The rough, netted surfaces of some types of melons can harbor microorganisms which can be transferred to the flesh during cutting. To minimize the risk of cross-contamination, use a vegetable brush and rinse melons thoroughly under running water before peeling or slicing. Rinsing with hot water has been shown to reduce bacteria on the surface of unpeeled melons without impacting texture.

Mushrooms. Rinse under cool running water and pat dry with a paper towel right before use. Avoid soaking in water to prevent changes in texture.

Peaches, plums and other soft fruits. Rinse under running water and dry with a paper towel.

Peppers. Rinse well under running water. When rinsing hot peppers, wear gloves and keep hands away from eyes and face. Wash hands well afterwards with soap or wear gloves.

Root vegetables. Peel potatoes, carrots, turnips and other root vegetables, or clean them well with a firm scrub brush under lukewarm running water.

