

Handling Fresh Produce Safely



In June 2001, contaminated melons caused a Salmonella enterica outbreak in California leading to 23 illnesses.

Public Health Reasons

Between 1999 and 2007, fresh produce was associated with 12.3% of reported foodborne disease outbreaks in the U.S. One way to reduce risk for foodborne disease attributed to fresh produce is to buy from a supplier who follows Good Agricultural Practices (GAPs). GAPs is a voluntary certification program offered by a third party auditor. A GAPs audit precedes certification. In the audit, an auditor assesses the producer's efforts to minimize the risk of contamination of fresh fruits, vegetables, nuts, and other commodities by microbial pathogens. GAPs guidelines are based on the U.S. Food and Drug Administration's (FDA) *"Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables."* The guidelines center around eight principles:

1. preventing microbial contamination
2. using GAPs
3. dealing with human and animal feces
4. using water
5. dealing with animal manure
6. worker hygiene sanitation
7. following all applicable laws
8. using a traceback system or other record of documentation

Most suppliers of major markets, such as the National School Lunch Program and retail grocery stores, are required to be GAPs certified.

Being GAPs certified does not eliminate risk for foodborne disease, but it does reduce risk. Therefore, it is very important to handle and store produce in a safe manner after it is received. For detailed information about produce storage, go to: <http://postharvest.ucdavis.edu/files/109107.pdf>

Uncooked fruits and vegetables, except for cut melons, sliced tomatoes, and bean sprouts, are NOT potentially hazardous, so do not need to be at 41°F (5°C) or colder. However, it is *recommended* that they be held at 41°F (5°C) or colder for optimal quality. While whole produce does not need to be refrigerated, some fresh-cut produce does. Fresh-cut melons, tomatoes, and leafy greens are classified as potentially hazardous, so they must be kept at 41°F (5°C) or colder after cutting. In order to keep foods at 41°F (5°C) or colder, it is recommended to keep the refrigerator

set at 39°F (3.8°C). While other fresh-cut produce, such as celery sticks, orange wedges, and cucumber slices are not classified as potentially hazardous, it is still recommended that they too be refrigerated after preparation. After cutting, the fluids and nutrients inside are released, providing an ideal medium for pathogenic microorganisms on the surface to grow.

Fresh fruits and vegetables that will not be peeled or cut must also be washed before use. Simple washing can only remove 10-10²cfu/g of pathogenic microorganisms even if a sanitizing treatment is used, so washing cannot be used to make a grossly mishandled food safe to eat. In addition, some pathogenic microorganisms can become internalized through openings on the fresh produce, such as bruises or cuts, so they cannot be removed by the cleaning process. Furthermore, internalization of pathogens increases if fresh produce is immersed or washed with water that is colder than the temperature of the produce, thus fresh produce must be washed with warm water. No soap or sanitizing solution can be used as both might leave a residue that is not safe to consume. Because fresh fruits and vegetables are ready-to-eat, one must wear gloves when washing or cutting them. It is always best to make sure that fruits and vegetables that are washed are completely dry before consumption. However, if there is some water still on the product, this does not pose a food safety hazard.

The FDA also regulates the consumption of juice by highly-susceptible populations including children under the age of nine. There have been documented cases of foodborne illness throughout the United States that were associated with the consumption of juice products that contained microorganisms such as *Cryptosporidium*, Shiga-toxin producing *Escherichia coli*, *Salmonella* spp., and *Vibrio cholera*. The FDA Food Code states that prepackaged juice served to highly susceptible populations must be pasteurized or otherwise treated to attain a 5 log reduction of the most resistant microorganism likely to occur in the juice.

Practices

Receiving Fresh Produce

- Visually inspect fresh produce for damage, filth, and infestation
- Discard all damaged, moldy, or decomposed fresh produce

Storing Fresh Produce

- It is best to not wash fresh produce before storage as it may promote the growth of bacteria that cause spoilage
- Store whole fresh produce properly. For more information about produce storage, visit: <http://postharvest.ucdavis.edu/files/109107.pdf>
- Keep fresh-cut fruits and vegetables at 41°F (5°C) or colder
- If a sealed crisper drawer is available in the refrigerator, place fresh produce in the drawer to maintain proper humidity conditions
- Place raw meat, fish, and poultry below fresh produce to prevent meat juice from possibly leaking onto and contaminating fresh produce

In order to keep foods at 41°F (5°C) or colder, it is recommended to keep the refrigerator set at 39°F (3.8°C).

Handling Fresh Produce

- Before and after cutting fresh fruits and vegetables, clean and sanitize tables and countertops used for food preparation and foodservice (See “Cleaning and Sanitizing Food-Contact Surfaces” fact sheet).
- Before and after handling any fresh produce, wash hands properly (See “Practicing Good Hand Hygiene for Food Workers” fact sheet).
- Wash whole fruits and vegetables immediately before eating or preparing for cooking.
- Never wash packaged fruits and vegetables that are labeled as previously washed or ready-to-eat.
- Wash fresh produce thoroughly under warm running water to remove soil by using chemicals that are recognized as safe for food. Never use detergent or bleach solutions to wash fresh produce.
- Produce washes can be used, as long as they are labeled as safe for food.

- Immerse leafy green vegetables in a clean bowl or basin with warm running tap water to remove any dirt or debris. Place the washed leafy green vegetables in a salad spinner or blot dry with paper towels.
- Scrub fresh produce that has firm skin, such as melons, with a clean produce brush.
- Remove any damaged or bruised part of the fresh produce.
- Never cut fruits and vegetables on surfaces or with knives that have been previously used to prepare raw meat, fish, or poultry.

The FDA Food Code does not require gloves to be worn while washing fruits and vegetables. However, it might be best to wear gloves because once the produce has been washed it becomes a ready-to-eat food, and the Food Code requires that gloves be worn when handling ready-to-eat foods (See “Handling Ready-to-eat Food” fact sheet).

Serving Juice

- Never serve fresh squeezed juice as part of the foodservice menu in a child-care facility; only serve pasteurized juice.
- Check the label on the juice package before purchasing. Make sure the prepackaged juice is pasteurized. If the prepackaged juice has not been pasteurized, there will be a warning statement on the package to inform the consumer that the product has not been pasteurized. Pasteurized prepackaged juice will not have a warning label.
- For educational activities where children make their own fresh squeezed juice, such as placing a few orange sections in a zippered plastic bag and allowing the children to squeeze the oranges to produce juice:
 - wash undamaged fruit thoroughly with warm water and a produce wash
 - make sure the hands of the child-care providers handling the fruit as well as the children’s hands are washed thoroughly (See “Practicing Good Hand Hygiene for Care Providers” fact sheet)
 - do not store fresh squeezed juice—consume the juice as soon as it has been made and discard any leftovers

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