

WASHING FRUITS AND VEGETABLES: Water, Soap or Bleach?

When washing fruits and vegetables, is it a good idea to use soap or bleach? With increased news media coverage about foodborne illness outbreaks linked to fresh fruits or vegetables, people often ask about the best way to wash produce in order to decrease the risk from harmful microorganisms that might be on the food.

Should I use soap or detergent to wash produce?

While Cornell food scientists agree that a detergent solution may remove more bacteria (and perhaps some pesticide residues, as well), they also caution that soap is not intended for this use. Once it gets onto some kinds of foods, it is more difficult to remove than it is from dishes and it can make people sick. In fact, the US Department of Agriculture, the Environmental Protection Agency, and the US Food and Drug Administration (FDA) -- the three federal agencies involved in food safety activities -- all recommend washing fresh fruits and vegetables with just plain water and not with soap or other products.

What about the produce rinse product I saw at the store?

To date, it has not been proven that commercial rinse products which claim to remove all sorts of hazards from produce are any more beneficial than plain water.

I have heard that a chlorine bleach/water solution will kill harmful microorganisms on produce; does that work?

While little research has been done on the effect of weak bleach solutions on microorganisms on fresh produce, most of the work that has been done suggests that chlorine solutions are no more beneficial than plain, potable water. While chlorine may work well to purify clear water or to sanitize clean kitchen surfaces, it does not seem to work well in the complex chemical environment of fruit and vegetable surfaces. In addition, a chlorine solution may leave residues of chlorinated compounds on the produce, and the amounts and safety of such possible residues have not been studied. Therefore, the use of bleach solutions to clean produce is not recommended.

Should I use a brush to clean produce?

Yes! Scrub the rinds of melons or citrus fruit with a brush under running water to rid them of soil particles and possible bacteria, viruses or parasites before cutting into them with a knife. To clean fruits like tomatoes or nectarines that have smooth, shiny skins, hold them under running water and rub them all over. Remember that smooth-skinned, clean-looking fruits can harbor harmful microorganisms, too.

A recent study showed that when tomatoes were inoculated with harmful bacteria around the stem scar (the most likely place that gravity would allow contaminants to accumulate on a tomato in an agricultural setting) and then cut straight through to the blossom end with a knife, bacteria were spread all across the cut surface of the tomato. Other studies have shown that bacteria like *Salmonella* can survive and grow on cut surfaces of tomatoes, cantaloupes, watermelons, and honeydew melons. Microorganisms would be more likely to survive in the stem scar, growth cracks, and any damaged parts of the produce, so it is important to trim away these parts before consumption.

How do you clean fruits and vegetables contaminated with parasites?

Unfortunately, there is no easy answer to this question. It is not yet known where parasites lodge in fruits like raspberries or strawberries and whether regular washing of these porous fruits can guarantee removal of parasites. Scientists and regulatory officials continue to study this problem.

What is being done at the farm?

Growers' organizations that are addressing this issue include the Florida Fruit and Vegetable Association, the Western Growers Association, and the International Fresh Cut-Produce Association (salads-in-a-bag, baby carrots, and other ready-to-eat, cut vegetables), whose members produce a large proportion of the nation's fresh fruit and vegetables. They have worked with the Fresh Produce Subcommittee of the National Advisory Committee on the Microbiological Status of Foods and others to formulate guidelines to minimize contamination of produce at farms and packing houses. These guidelines address many aspects of production including cleanliness of water used for irrigation, pest control solutions, and produce washing, manure use in fields, and farm worker personal hygiene and work habits.

This news should reassure consumers, but until we have more scientifically-based information about the things we don't know about harmful microorganisms on fresh produce, we should remember that: