

USDA Office of Pest Management Policy Factsheet Pesticide Residues on Fruits and Vegetables

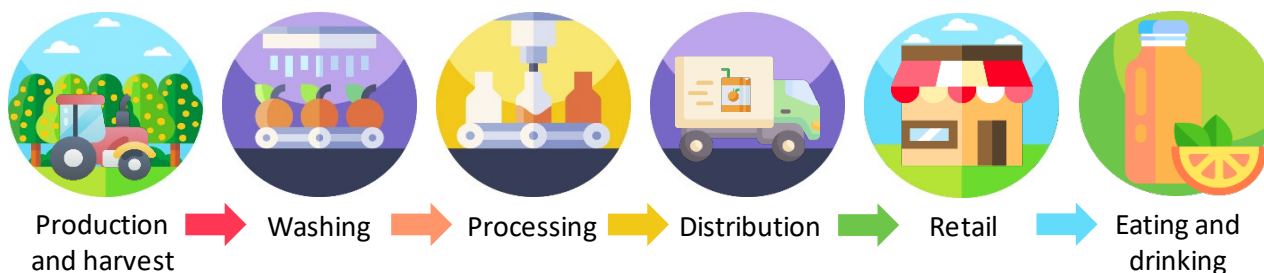
How are pesticide residues regulated?

All pesticides in the United States are registered by the U.S. Environmental Protection Agency (EPA) through a rigorous process that evaluates both human health and environmental effects. This includes assessments of potential exposure to pesticide residues in food and drinking water, as well as to people who apply pesticides.

The [Federal Food, Drug, and Cosmetic Act](#) (FFDCA) sets a high bar for health and food safety, especially for infants and children. For each pesticide, EPA determines safe levels and sets “[tolerances](#)” to ensure that any foods with residues are safe to eat. As enforcement tools, tolerances represent the highest amounts of pesticides that are allowed in food, and those levels are not expected to be exceeded when pesticides are applied in accordance with their labels. Tolerances are also called “maximum residue levels” (MRLs) and are only established after EPA has determined that foods containing these residue levels meet stringent regulatory safety standards.

How much pesticide residue remains on food?

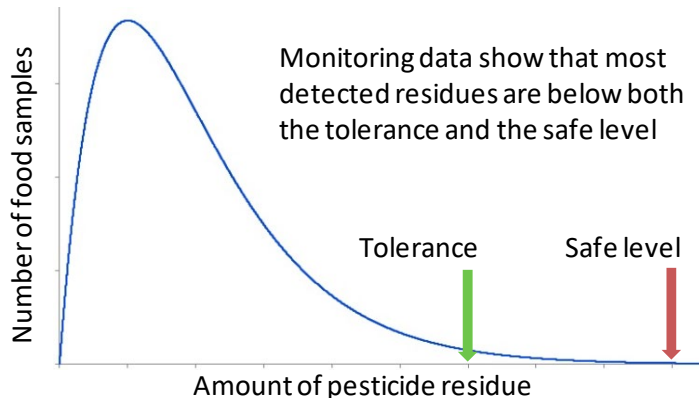
Fruits and vegetables go through many steps between farms and our plates. Pesticide residues are often reduced or removed through these steps. Farmers may apply pesticides to protect crops from insects, weeds, diseases, and other pests, but pesticide residues must be at or below the tolerance by the time fruits and vegetables enter commerce. Natural processes often result in residues being considerably below the tolerance by the time these foods reach your table. Many common food preparation practices, like washing and peeling produce, can further reduce pesticide residues, along with dirt and bacteria.



U.S. food safety monitoring programs consistently find that the vast majority of fresh, frozen, and processed foods have safe levels of pesticide residues. In 2019, USDA’s [Pesticide Data Program](#) (PDP) found that nearly 99% of sampled foods had residues below tolerances, and 42.5% had no detectable residues at all. The U.S. Food and Drug Administration (FDA) also has a [pesticide residue monitoring program](#). In 2018, FDA found that 97% of sampled foods produced in the United States had residues below tolerances, and 47% had no detectable residues. Both USDA and FDA collect samples for a wide variety of foods, including foods likely to be consumed by children.

What happens when a detected pesticide residue is above the tolerance?

Monitoring data show that pesticide residues in the U.S. food supply rarely exceed set tolerances. When a residue is detected above the tolerance, or if there is no tolerance, it is referred to as a tolerance violation. Residues above the tolerance may indicate that a pesticide was improperly applied, but a tolerance violation does not necessarily indicate that there is a health risk.



FDA enforces tolerances for foods in the United States, except for some animal products, which are enforced by USDA. When there is a tolerance violation, regulators take actions such as sending warning letters to the producers, removing the food from the market, or preventing a food from being imported. Regulators may also require changes or clarifications to pesticide labels to ensure proper use.

Bottom line: fruits and vegetables are safe and healthy!



Pesticide residues are strictly regulated in the United States, and monitoring data show that fruits and vegetables available to U.S. consumers are safe and healthy. Regardless of our choices to buy organic or conventional produce, we can feel confident in eating an abundant variety of fruits and vegetables. Making fruits and vegetables [half of our plate](#) can help us be healthier now and in the future.

References

- Environmental Protection Agency (EPA) [Regulation of Pesticide Residues on Food](#)
- U.S. Department of Agriculture (USDA) [Pesticide Data Program](#)
- Food and Drug Administration (FDA) [Pesticide Residue Monitoring Program](#)

Additional Resources

- National Pesticide Information Center (NPIC) [Pesticide Residues in Food](#), [Minimizing Pesticide Residues in Food](#), and [How can I wash pesticides from fruit and veggies?](#)
- Alliance for Food and Farming [Safe Fruits and Veggies Website](#)
- International Food Information Council (IFIC) infographics [Pesticide 101](#) and [Pesticides: Myths vs. Reality](#)

For more information, [contact](#) the USDA [Office of Pest Management Policy](#) (OPMP).