

Pesticides and Food: What you need to know

From supermarkets to farmers markets, Americans can enjoy hundreds of nutritious, fresh and high-quality fruits and vegetables.

In order to provide such a plentiful food supply, conventional and organic farmers have multiple options to protect crops from weeds and pests—including pesticides. Even with strict safety standards in place to help ensure the safety of the food supply, you may have questions about the use of pesticides in food production, as well as pesticide residues on food.

What is a pesticide?

A pesticide is any substance or mixture of substances—natural, organic or man-made—used to prevent, destroy or manage pests. Not all pesticides are the same. Different types of pesticides target different types of pests. For example, insecticides target insects, herbicides target weeds, and fungicides target fungi that may cause plant diseases.



Why are pesticides used to grow food?

There are thousands of insects, weeds and plant diseases that can have a devastating effect on conventional and organic crops and, ultimately, threaten our food supply. Pesticides are one of many tools farmers use to protect their crops, similarly to how you may use pesticides to protect plants in your home garden.

How are pesticides tested for safety?

Pesticides are strictly regulated in the United States to ensure that they may be used safely and will not harm human health or the environment. All pesticides are rigorously screened before being allowed for use. Three government agencies share responsibility for regulating conventional and organic pesticides and ensuring the food supply is safe: U.S. Environmental Protection Agency (EPA), United States Department of Agriculture (USDA) and U.S. Food and Drug Administration (FDA).

Who monitors pesticide residue levels on fruits and vegetables?

Small amounts of pesticide are sometimes present on produce after it leaves the farm, these are known as “pesticide residues.” The U.S. Environmental Protection Agency (EPA) has developed strict limits (or “tolerances”) for the amount of pesticide residue that can be present on food. The FDA and USDA share responsibility for monitoring levels of pesticide residues in and on foods.

Are fruits and vegetables that have been treated with pesticides safe to consume?

Yes. Most pesticide residues, if present at all, are typically well within safe levels (as determined by the EPA) for both adults and children. The website www.safefruitsandveggies.com has a “safe produce” calculator that shows how much of a food can be eaten before reaching a minimal level of health concern. For example, a child could consume over 1,500 servings of strawberries in one day (a feat that would be physically impossible) without any adverse



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FAST FACTS

- The benefits of consuming fruits and vegetables far outweigh any risks from the use of pesticides. Conventional or organic, both types of produce are highly regulated and safe.
- Both conventional and organic farmers may use pesticides.
- Federal and state sampling programs consistently show that pesticide residues on conventional and organic foods are at very low levels, when present at all.
- Washing fruits and vegetables often eliminates any pesticide residues, if they are present at all.
- Farmers use the smallest amount of pesticide necessary to protect their crops, so they only apply pesticides at the right time, in the right amount, and at the right location.

health effect from pesticide residues, even if the strawberries have the maximum pesticide residue levels identified by FDA or USDA.

Do conventional and organic farmers always use pesticides?

No. Pesticides are expensive, so both conventional and organic farmers try to control insects, weeds, fungi or diseases using a variety of lower cost methods and tools. The section below highlights some of these methods, such as integrated pest management. The decision to use pesticides can be based on scouting fields for pests, historical experience or inspections conducted by certified crop advisors.

Are pesticides used in organic production?

Yes. “Organic” does not necessarily mean “pesticide free”. In fact, organic production can and often does include pesticides. The United States Department of Agriculture (USDA) organic regulations provide a national list of allowed and prohibited substances—man-made and natural, available at <http://www.ams.usda.gov/nop>.

How do farmers manage the amount of pesticides used to grow food?

Both conventional and organic farmers take steps to ensure that pesticides are applied at the right time, in the right amount, and in the right location. Some examples include:

- **Integrated pest management (IPM):** Used by conventional and organic growers, IPM is a process that focuses on managing insects, weeds and diseases through a combination of cultural, biological and chemical measures. Pesticides are used only when needed and in combination with other approaches. Pest control materials are selected and applied in a manner that minimizes pesticide exposure for humans and the environment.
- **Precision agriculture:** Precision agriculture—also known as site-specific crop management—incorporates technologies that increase crop yields, decrease the amount of agricultural inputs (pesticides, fertilizers, water, etc.), and minimize impacts on the environment. Global



QUICK TIPS TO FURTHER REDUCE YOUR EXPOSURE TO PESTICIDE RESIDUES

The risk of exposure to pesticide residues in fruits and vegetables is extremely low. However, by following the FDA's proper handling and rinsing practices, you can further minimize or eliminate pesticide residues, dirt and bacteria (if present). The tips below apply to conventionally-grown and organic produce.

- **Rinse and scrub:** All fruits and vegetables should be rinsed thoroughly with clean running water before eating. For firm produce, scrub with a clean produce brush on the surface while rinsing. Scrubbing will remove most wax coatings and residues, along with any dirt and bacteria. If the item package indicates “pre-washed,” “pre-rinsed” or “ready-to-eat,” you can consume safely without further rinsing. Do not use soap. Dry with a paper towel or clean towel.
- **Peel and discard:** Peeling produce can also remove any residues (if present) that may be on the skin. Rinse the produce before peeling. Throw away outer leaves of leafy vegetables.

positioning systems (GPS), geographical information systems (GIS), and satellite and aerial remote sensors are used in precision agriculture to pinpoint areas of need in a field. Sometimes, only a small section of a field may need to be treated for pests or weeds. Using the data from these tools, conventional and organic farmers will apply the right amount of a pesticide, at the right time, and in a precise location of a field, thus reducing the amount of pesticides applied.

- **Biotechnology:** Scientists can use biotechnology to add genes with desirable characteristics, like insect protection

or herbicide tolerance, to crops. These plants are often called “Genetically Modified Organisms” or “GMOs”. Herbicide-tolerant crops allow the crop to survive while weeds are eliminated and reduce the need for tilling that, in turn, decreases soil erosion. Biotech (or “GMO”) crops with insect control traits reduce insect damage and require fewer or no insecticide applications. There also are biotech crops on the market that tolerate drought stress, avoid viral infections and produce healthier oils. Upcoming biotech crops include apples that stay fresh longer and potatoes that resist browning, thus reducing food waste.



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