



PARTNERSHIP FOR PUBLIC HEALTH

Pesticides

By Alan S. Peterson, MD

Many people who want to follow a high-plant diet are concerned about pesticides. The Environmental Protection Agency estimates that 20,000 farmers and their families are poisoned by pesticides each year, but no studies have shown pesticide poisoning from routine consumption of fruits and vegetables.

Both conventional and organic fruits and vegetables are grown with pesticides, but organic growers use "natural" pesticides (such as ground-up chrysanthemums), while conventional growers use "artificial" pesticides that are often copies of the pesticides found in nature. Your body cannot distinguish between "natural" and artificial pesticides.

"Organic" is Difficult to Regulate

The U.S. Department of Agriculture (USDA) tries to regulate farms or handling operations certified by a state or private agency accredited by USDA. The USDA National Organic Program (NOP) defines organic produce as being produced without using most conventional pesticides, fertilizers made with synthetic ingredients or sewage sludge, bioengineering or ionizing radiation. Farms and handling operations that sell less than \$5,000 worth per year of organic agricultural products are exempt from certification. Before a product can be labeled "organic", a government-approved company inspects the farm where the food is grown to make sure the farmer is following all the rules necessary to meet USDA organic standards. Companies that handle or process organic food before it gets to your local supermarket or restaurant must be certified, too. However, I know of no agency that checks organic foods produced by companies that sell less than \$5,000/year and it is very difficult, expensive and time-consuming to check large producers repeatedly to see if they are following the rules.

No Data Showing Conventional Produce is Harmful

We know that chronic exposure to large amounts of pesticides can harm you (*Interdiscip Toxicol.* Nar 2009; 2(1):1-12). However, we have no proof yet that eating conventional produce grown with pesticides that break the "organic rules" is harmful to humans. All of the available evidence is that the people who eat the most fruits, vegetables, whole grains, beans, nuts and other seeds are at markedly reduced risk for heart attacks, diabetes, strokes, certain cancers and premature death, regardless of whether they eat conventionally grown or organic foods.

Pesticide Levels in Conventional Produce

If you are concerned about pesticide levels and have a tight budget or do not have good sources of organic produce, you may be interested in using the findings of [The Environmental Working Group \(EWG\)](#) to choose fruits and vegetables that have the lowest levels of insecticide residues. The good news is that the following non-organic foods have very low levels of pesticides: onions, avocados, sweet corn, pineapples, mangoes, peas, asparagus, kiwi fruit, cabbage, eggplant, melons, grapefruit, sweet potatoes, papayas and cauliflower.

Higher levels of pesticides were found in celery, peaches, strawberries, apples, blueberries, nectarines, bell peppers, spinach, kale, collard greens, cherries, potatoes, grapes and lettuce. Fruits and vegetables that are eaten with their skin usually contained higher pesticide levels. However, I do not recommend removing edible skins from produce just to reduce pesticide exposure, because the skins are concentrated sources of nutrients and fiber.

Children are especially vulnerable to pesticides. The National Academy of Sciences estimates that 50% of lifetime pesticide exposure occurs during the first five years of life. The World Health Organization cites that over 30% of the global burden of disease in children can be attributed to environmental factors, including pesticides.

Previously, thought to be “safe” insecticides have recently been tied to neurobehavioral problems in children. These pyrethroids are synthetic chemicals used in agricultural settings, some mosquito repellents and treatments for lice, scabies, and fleas. In the general population, folks are exposed to pyrethroids via diet and indoor residential uses (through eating, breathing, and skin contact).

Recommendations

I support organic farmers for their efforts to solve environmental problems, and we often buy organic fruits and vegetables simply because they look and taste good. But organic produce is often more expensive, and if budget is an issue, it's healthier to eat a lot of conventionally-grown fruits and vegetables than a small amount of organic fruits and vegetables or none at all. Furthermore, the scientific literature shows that it is more healthful to eat lots of fruits and vegetables from any source than to replace them with processed foods that crowd the supermarket shelves.

* The label "organic" does mean that a food is healthful. There are organic white flours, organic sugars and many organic junk foods -- cookies, crackers, chips, ice cream, soda and so forth.

* Wash fruits and vegetables before you eat them, even though washing does not remove all pesticides. Remove the outer leaves from lettuce, cabbage and other leafy greens.

Reference: Dr. Gabe Mirkin and the Beyond Pesticides Fact Sheet