

## Why Eat Organic Foods?

Adopting an organic lifestyle helps to enhance the health of ecosystems and organisms. It is generally agreed upon by its supporters that growing and eating organic food is better for the environment. Growing foods organically excludes, when possible, the use of synthetic fertilizers, pesticides, growth regulators, and additives to livestock feed. Organic farmers usually rely on crop rotation and animal manures to maintain soil productivity, to supply plant nutrients, and to control weeds, insects, and other pests.

As a result, in addition to reducing your exposure to harmful pesticides, eating organically may also reduce your exposure to hormones, antibiotics, and potentially harmful irradiated food. Less antibiotic use may help to avoid the development of antibiotic resistance. according to the **Environmental Working Group**, (a non-profit organization that focuses on protecting public health and the environment regarding public policy), scientists have begun to agree that even small doses of pesticides and other chemicals can have long-term health consequences that begin during fetal development and early childhood.

The Organic Seal of Approval guarantees the consumer that there has been no usage of genetically modified crops or sewage sludge as fertilizer, helping to reduce toxic runoff into rivers and lakes and the subsequent contamination of watersheds and drinking water.

When you eat organically grown food, you may also be supporting small, local farmers, who are able to use less energy in transporting food from the field to the table.

Organic beef, chicken, and poultry are raised on 100% organic feed and never given antibiotics or hormones; in addition, their meat is never irradiated. Organic milk and eggs come from animals not given antibiotics or hormones and fed 100% organic feed for the previous 12 months. (Free-range eggs come from hens that are allowed to roam, but they are not guaranteed to be organic.)

Several studies support the claim that organic diets can dramatically reduce pesticide exposure. One such study compared pesticide metabolite levels in 18 children who got at least 75% of their juice and produce servings from organic sources with those in 21 children who got at least 75% of their juice and produce from conventionally grown food. Levels of organophosphorus pesticide metabolites in the urine collected were six to nine times higher in the children who ate conventionally grown foods than in those who ate organic diets.<sup>1</sup> More recent studies have corroborated these claims.<sup>2-4</sup>

Claims of enhanced nutritional benefits of organic foods have caused much controversy. However, studies have been able to support this claim. The Journal of Alternative and Complementary Medicine reported one study showing that, on average, organic crops contain 86% more chromium, 29% more magnesium, 27% more vitamin C, 21% more iron, 26% more calcium, 42% more manganese, 498% more iodine, and 372% more selenium. Significantly less nitrates were also found in the organic foods.<sup>5</sup> Resulting from nitrogen-based fertilizers, high nitrates in food and drinking water can be converted to potentially carcinogenic nitrosamines.

The Journal of Agriculture and Food Chemistry reported that organically grown corn, strawberries, and marionberries have significantly higher levels of anticancer antioxidants than nonorganically grown foods. Protective compounds, such as flavonoids, are produced by plants to act as their natural defense in response to stresses, such as insects or other competitive plants. The report suggested that good soil nutrition seems to increase the amount of these protective compounds, while pesticides and herbicides disturb their production.<sup>6</sup> A more recent study found similar results.<sup>2</sup>

Another important issue was brought to light in a 2010 review of studies that found an increased incidence of thyroid disease and diabetes with exposure to organochlorines.<sup>7</sup> The Environmental Working Group continues to stay on top of these issues as they come to the forefront.

What foods are most important to eat organically? Organic meats and dairy appear to be the most heavily contaminated with hormones, pesticides and herbicides. Produce can be quite variable. If you are unable to eat organic produce, it is wise to be aware of those products that are the least contaminated with pesticides.

The **Environmental Working Group** publishes the lists below (**Dirty Dozen™** and **Clean 15™**); they are updated annually. Foods are listed in order of importance. Their lists may be downloaded on [ewg.org](http://ewg.org).

**Highest in Pesticides:** in 2010, these 12 popular fruits and vegetables were considered to be the *most* contaminated with pesticides:

#### **Dirty Dozen™**

**Celery**  
**Peaches**  
**Strawberries**  
**Apples**  
**Blueberries**  
**Nectarines**  
**Bell Peppers**  
**Spinach**  
**Cherries**  
**Kale/collard greens**  
**Potatoes**  
**Grapes (imported)**

**Lowest in Pesticides:** in 2010, these 15 popular fruits and vegetables were considered to be the *least* contaminated with pesticides:

#### **Clean 15™**

**Onions**  
**Avocados**  
**Sweet Corn**  
**Pineapples**  
**Mangos**  
**Sweet Peas**  
**Asparagus**  
**Kiwi**  
**Cabbage**  
**Eggplant**  
**Cantaloupe**  
**Watermelon**  
**Grapefruit**  
**Sweet potato**  
**Honeydew melon**

#### **Genetically-modified Produce:**

In order to determine if produce has been genetically modified, check the number PLU (product look-up) code on the sticker on most produce. If the number code is simply four digits, the produce is conventionally grown, which means it is not genetically modified and not organic. If the PLU code is a five digit code beginning with an “8”, the product has been genetically modified. If the PLU code is a five digit code beginning with a “9”, the product is organic, and also, by definition of organic, not genetically modified.

#### **References**

1. Curl CL, Fenske RA, Elgethun K. Organophosphorus pesticide exposure of urban and suburban preschool children with organic and conventional diets. *Environ Health Perspect.* 2003;111(3):377-382.
2. Crinnion WJ. Organic foods contain higher levels of certain nutrients, lower levels of pesticides, and may provide health benefits for the consumer. *Altern Med Rev.* 2010;Apr 15(1):4-12
3. Lu C, Barr DB, Pearson MA, Waller LA. Dietary intake and its contribution to longitudinal organophosphorus pesticide exposure in urban/suburban children. *Environ Health Perspect.* 2008 Apr; 116(4):537-42
4. Lu C, Toepel K, Irish R, Fenske RA, Barr DB, Bravo R. Organic diets significantly lower children's dietary exposure to organophosphorus pesticides. *Environ Health Perspect.* 2006 Feb;114(2):260-3.
5. Worthington V. Nutritional quality of organic versus conventional fruits, vegetables, and grains. *J Altern Complement Med.* 2001;7(2):161-173.
6. Asami DK, Hong YJ, Barrett DM, Mitchell AE. Comparison of the total phenolic and ascorbic acid content of freeze-dried and air-dried marionberry, strawberry, and corn grown using conventional, organic, and sustainable agricultural practices. *J Agric Food Chem.* 2003;51(5):1237-1241.
7. Donato F, Zani C. Chronic exposure to organochlorine compounds and health effects in adults: diabetes and thyroid diseases. *Ann Ig.* 2010 May-June;22(3):185-98.