

ORGANICALLY GROWN FOODS VERSUS NON-ORGANICALLY GROWN FOODS

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Introduction

Diet plays an important role in health and disease. The foods we choose to eat can help in the prevention of many illnesses, thus increasing our quality of life. In the local supermarket or health food store, there are more food choices than ever before. This can often lead to confusion in determining what food choices are the healthiest. Some people are choosing organically grown foods over conventionally grown foods. The main reasons some choose to consume organically grown foods is the thought that (1) they are consuming little or no pesticide residue left on produce, (2) they want to support an industry that is more gentle and has less negative impacts on the environment (3) they believe organically grown foods have higher levels of nutrients. It is important for individuals to weigh the proposed health benefits and financial cost of consuming organic vs. non-organic foods.

What does the term “organic foods” mean?

Organic foods can include fruits, vegetables, grains, dairy foods, eggs, and to some extent, meats and poultry. Organic foods are defined as those foods that are grown without the use of synthetic fertilizers, sewage sludge, irradiation, genetic engineering, pesticides, or drugs. Pesticides are chemical or control agents made to kill insects, weeds, and fungal pests that damage crops. In large amounts, these

have been found to cause different illnesses including cancer. However, organically grown foods do not necessarily mean toxin-free. Plants produce their own natural toxins and these can contaminate organic products, as well as the approved use of natural pesticides, such as sulfur, and copper, which can also be found on the organically grown foods.

When talking about animals, organically raised animals are those raised with organic feed and kept free from growth hormones and antibiotics, as well as oftentimes treated more humanely and given better areas to roam than their non-organic counterparts.

Are organic foods safer than conventionally grown foods?

The short answer is: Data from research does not show that organically grown foods are safer than conventionally grown foods. An analysis of 237 research studies that looked at organically grown produce and conventionally grown produce found that there was little evidence that conventionally grown foods were a higher health risk than organically grown products. Even though researchers found that organic produce had a 30% lower risk of pesticide contamination than conventionally grown fruits and

vegetables, organic foods are not necessarily 100% free of pesticides. Furthermore, the researchers stated that the pesticide levels of all foods mostly fell within the allowable safety limits that have been set by the government. The Environmental Protection Agency (EPA) completes a risk assessment for each pesticide and determines if there is “reasonable certainty that the pesticide will not harm a person’s health”. If there is risk, the pesticide is not allowed to be used.

Organic foods also have strict rules concerning the amount of natural contaminants allowed for safe consumption. It has also been found that these foods only contain small levels of these contaminants.

Whether choosing organic or non-organic foods, experts agree that the best way to safeguard ourselves is to thoroughly rinse all fruits and vegetables under running water. Items with inedible skins should be washed, like cantaloupes and melons, because cutting the rinds with a knife can bring contaminants from the rind into the produce.

Are organic foods more nutritious?

As the popularity of consuming organic foods has grown, several studies have compared the nutritional quality of food conventionally grown versus organically grown. More recent studies stated below have found that nutritionally speaking, conventionally grown foods and organically grown foods have no significant overall differences in their nutritional quality.

How do taste and appearance compare to conventional foods?

The information from the studies below also shows no significant flavor difference between organically grown and conventionally grown foods. Instead, taste differences appear to come from the food variety, its growing conditions, and its maturity and harvest time. Unlike the past, most of today’s organic foods compare very favorably in appearance with conventionally grown foods.

How do I know that what I buy is really organic?

The National Organic Program ensures that the production, processing and certification of organic foods match a comprehensive standard. Large farming or processing operations must be certified. Even smaller, uncertified organic operations must abide by certain labeling standards. Examples of more common labeling terms are as follows:

- **100% organic:** No synthetic ingredients are allowed by law. The USDA Organic seal is on this product.
- **Organic:** At least 95% of ingredients are organically produced. The USDA Organic seal is on this product.
- **Made with organic ingredients:** At least 70% of ingredients are organic; the other 30% are from a list

approved by the USDA. Made with organic ingredients may appear on the packaging, but not the USDA Organic seal.

- **Natural or All Natural:** Does not mean organic. These labels apply to meat and poultry products, which may not contain any artificial flavoring, colors, chemical preservatives, or synthetic ingredients. These food items must only be minimally processed (e.g., roasted, frozen) or if there is a physical process it is to simply separate the item (e.g., grind, separating eggs, and juicing fruit) and cannot be separated by chemicals or other unnatural means.

Conclusions

A Stanford University Meta-Analysis (which is a detailed study of several related studies) found that in 237 studies comparing organically grown foods versus conventionally grown foods there were little differences between the two. For example:

- There were no consistent differences in the amount of vitamin levels of organic products, and only one nutrient, phosphorus was significantly higher in organic versus conventionally grown produce. However, very few Americans have a phosphorous deficiency, so this has little clinical significance.
- There was also no difference in protein or fat content between organic and conventional milk, though evidence from few studies suggested that organic milk may contain higher levels of omega-3 fatty acids.
- The researchers of this Meta-Analysis of 237 studies were also unable to find specific fruits and vegetables for which organic was the consistently healthier choice.
- Even though researchers found that organic produce had a 30% lower risk of pesticide contamination than conventional fruits and vegetables, organic foods are not necessarily 100% free of pesticides. Another interesting fact is that the pesticide levels in both groups generally fell within the allowable safety limits the government has set.

As stated earlier, it is important for individuals to weigh the proposed health benefits, environmental benefits, and financial cost of consuming organic vs. non-organic foods for their household. Either choice, organic or conventionally grown foods, eating fruits and vegetables along with lean proteins have health benefits that will help you and your family for years to come.

References

American Dietetic Association. (2012). Is There Truth in Packaging? American Dietetic Association Offers Help in Translating Food Marketing Terms Retrieved from: <http://www.eatright.org/Media/content.aspx?id=4294967999#Ud3VFNr8hk>.

Dangour, AD, et al. (2009). Nutritional quality of organic foods: a systematic review. *Am J Clin Nutr*, 90(3), 680-685.

Smith-Spangler, C, et al. (2012). Are Organic Foods Safer or Healthier Than Conventional Alternatives? A Systematic Review. *Annals of Internal Medicine*. 157(5), 348-366.

United States Department of Agriculture National Organic Program, Agriculture Marketing Service. (2012). Labeling Organic Products. - Retrieved from: <<http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3004446>>.

United States Department of Agriculture. (2012). National Organic Program. Retrieved from: <<http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateC&navID=NationalOrganicProgram&leftNav=NationalOrganicProgram&page=NOPConsumers&description=Consumers&acct=nopgeninfo>>.

United States Environmental Protection Agency. (2012). Assessing Health Risks from Pesticides. Retrieved from: <http://www.epa.gov/pesticides/factsheets/riskassess.htm>



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