

## Perspective on the Benefits of Organic Foods

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**Title of Topic:** Perspective on the Benefits of Organic Foods

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### Claim of Topic

Registered dietitians (RDs) and dietetic technicians (DTRs), registered should fully understand all of the factors consumers must grapple with when making the choice to purchase organic foods, as well as to support future research that will further clarify the differences and costs associated with organically versus conventionally produced foods.

Organic foods are increasing their presence in the marketplace. According to a 2009 Organic Trade Association survey, sales of organic food in the U.S. have grown by almost 16 percent in 2008 over 2007, totaling \$22.9 billion in 2008 sales; 3.5 percent of all U.S. food sales (1). These foods are produced following practices described in the USDA National Organic Program (NOP), a marketing program with a certification process throughout the production and manufacturing chain (2). The NOP describes the practices that are required for labeling a product “organic,” but it does not address nutritional benefits or food safety issues (2).

Organic foods are generally more expensive in the marketplace than conventional foods, due in part to their smaller production scale and higher labor costs (3). However, organic produce purchased in-season is usually comparable in price to conventional produce (4). In addition, community supported agriculture programs can provide low-income consumers with access to fresh, organic produce that may be difficult to find in some urban locations (5). Research also shows consumers are willing to pay a price premium for some organic food products in the marketplace, including certain fruits and vegetables (6).

When considering benefits and costs of organic versus conventional agricultural production, it is important to consider benefits and costs to consumers, farmers, communities and the environment (3, 7, 8). For example, current research in numerous areas is showing both short-and long-term benefits to our population and the planet with organic and other sustainable production systems. Documented environmental benefits of organic production systems include reduced nutrient pollution, improved soil organic matter, lower energy use, reduced pesticide residues in food and water and enhanced biodiversity (3).

Whether or not organically produced foods are more nutritious than their conventionally produced counterparts is the subject of an ongoing debate. One recent review of the nutritional quality of organically versus conventionally produced food reported organically produced plant products contained more dry matter and some minerals (iron, magnesium) and more antioxidants such as phenols and salicylic acid than conventionally produced plant products (9). In contrast, a recent systematic review found no evidence of a difference in nutrient quality between organically and conventionally produced food, except for nitrogen (which was significantly higher in conventionally produced crops) and phosphorus and titratable acidity or ripeness at harvest (which were significantly higher in organically produced crops) (10). In this systematic review, the authors did not examine differences in contaminants (such as pesticide, herbicide or fungicide residues) or the possible environmental consequences of organic versus conventional production practices (10).

## **Discussion of the Topic:**

Consumers report cost, health and environmental concerns as factors in considering their decision to purchase foods labeled organic (1, 11). In juxtaposition to conventional foods, there are a variety of reasons why organic foods can be considered as facilitating the creation of a healthful, sustainable food system.

1. Some organic fruits, vegetables and juices may contain more phytochemicals (e.g., antioxidants and polyphenols) compared to their conventionally grown counterparts (9, 12-17). However, researchers are still debating from both sides (pro and con) of any potential nutritional advantages of consuming organic versus conventional fruits and vegetables and other plant products (9, 10, 12-18). As with all research, it is important to understand and question the methodology of any study and not draw broad conclusions from limited or incomparable data.
2. Organic meat may reduce the development of human antibiotic resistance and lessen air and water pollution (19).
3. In an ongoing cohort study, consumption of organic dairy products was associated with a lower risk of eczema during the first two years of life (20). The authors hypothesize “a high intake of omega-3 fatty acids and/or conjugated linoleic acids from organic dairy products by the child is protective against eczema (independent of atopy) and that also the mother’s intake of these fatty acids during pregnancy and lactation contributes to this protection” (20). One proposed mechanism to explain this association is the production of biologically active compounds and processes of intra-cellular signaling, since it is typical for molecules participating in processes of intra-cellular signaling to be present in very small amounts (21). Additional research is needed in this area (20, 21).
4. Organic agriculture offers numerous opportunities to reduce exposure to agricultural pesticides through the food and water supply (3), which may be detrimental to human health, particularly for high-risk groups such as pregnant women, infants, young children and farm worker households (22-27).
5. Organically cultivated foods can promote a more sustainable food system by reducing soil erosion and rehabilitating poor soils (7, 28). Many components of organic agriculture can be implemented within other sustainable farming systems (7).
6. Organic agriculture can integrate small- to medium-size farmers into high-value food chains/markets (7). Increasingly, larger farms and international producers have entered the organic marketplace; even so, the smallest organic farms have been able to maintain a stable share of the organic foods sector (3).
7. Organic agriculture has documented heightened economic values of environmental services than conventional agriculture, including services provided by shelterbelts on farmland. These shelterbelts provide shelter and pollen/nectar resources to pollinators (29). Many agricultural food crops are dependent on pollination services provided by insects and other animals including birds. In contrast, synthetic pesticides used in agricultural production may negatively affect insects and other animals that are pollinators of food plants (28).
8. Organic agricultural systems offer multiple opportunities to help reduce greenhouse gas emissions and counteract global warming (7). Organic agriculture significantly lowers energy requirements for agricultural production systems compared to industrial agriculture (3, 7, 8). Long-term field experiments document that organic matter is higher in organically managed soil than in conventionally managed soil (7, 30). Humus (the well-decomposed part of soil organic matter) helps mitigate climate change by sequestering carbon and acting as a sink (e.g., by removing carbon dioxide from the atmosphere and fixing it in the soil) (7).
9. Biodiversity is enhanced in organic agricultural systems (3, 7, 28), which makes these farms more resilient to unpredictable weather patterns and pest outbreaks (7), as is predicted with climate change (31).

## **Bottom Line:**

As shown above, the decision to choose organic products is influenced by many issues, including cost, health and environmental concerns. How to make sense of all the research and help consumers should be one of the roles of the RD and DTR. While there is still more work to be done, current research indicates

there can be initial and long-term positive impacts on the health of individuals and the environment from the adoption of large-scale organic farming and food consumption. However, the potential of organic agriculture to improve the environmental performance of United States agriculture is having only a modest impact on the environment because the current organic adoption rate is low (3). Such that, the *2008 Food, Conservation and Energy Act* (2008 Farm Bill) included increased “funding to help producers and handlers with organic certification costs, to enhance data collection on organic agriculture and to support Federal organic regulatory activities.”

The USDA’s Agricultural Marketing Service also administers several different grant programs, which have assisted a number of different local, organic initiatives across the U.S. (3). “Public investment in organic agriculture facilitates wider access to organic food for consumers and helps farmers capture high-value markets and boost farm income, as well as conserve nonrenewable natural resources and protect U.S. soil and water.” (3)

There is an ongoing debate over the federal USDA NOP which certifies food products as “organic” as some manufacturers are looking to broaden and thereby weaken the label by allowing these food products to include trace ingredients or additives that may not be organic. The challenge for our field is to understand exactly how foods and food products are grown and manufactured and the effects these methods may have on our personal health and the health of the global environment. For instance, local foods are not always organic (and vice versa) and not all organic food products being marketed and sold at retail outlets are nutrient-dense foods (e.g., organic potato chips). Hence, when making food choices as part of a healthful diet, moderation and variety are important, regardless of whether or not food is produced organically or conventionally.

### **Opportunities for the RD/DTR:**

Organic farming methods, organic foods and their associated products are increasing in agriculture and the marketplace. RDs and DTRs who understand the issues related to purchasing organic foods can help consumers make informed decisions that are best for their needs. ADA’s Position Paper on *Practices to Conserve Natural Resources and Support Ecological Sustainability* encourages “consumption of food produced with fewer agricultural inputs (e.g., certified organic, grass-fed or range-fed meats, pastured poultry).” “In health care, Kaiser Permanente has shown innovative leadership by opening organic farmers’ markets in its hospitals and medical office buildings throughout the nation as part of a comprehensive food policy” (28). Seasonally available, locally produced organic produce is usually comparable in price to conventional produce (4). Consumers and families on a tight budget can also purchase organically produced foods through a community supported agriculture program (5). To further contain a family’s monthly food costs, seasonally available, locally produced organic foods can be frozen, dehydrated or preserved (canned) for later use. Food and nutrition professionals are well-positioned to provide the public with both knowledge and skills in these areas.

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