

## **Organic Food and Benefits**

Shopping in the grocery stores, consumers will find increasingly congested stacks of food with the labels of “organic food”. Organic food has been one of the fastest growing sectors of food industry in the past few decades as a legitimate alternative to conventional food. Organic food can be defined as the “product of a farming system which avoids the use of synthetic fertilizers, pesticides, growth promoters and additives” (Kouba 33). There is a growing market for organic food even though its price is usually significantly higher than that of conventional food. The reasons of such large demand of organic food lie in its benefits. Why do people purchase organic food over traditional food, and what makes it more and more demanding? Many research studies regard organic food as healthy food because it contains low pesticide residue. Moreover, many consumers find organic food more nutritious and better-tasting than traditional food. Also, the positive environmental impact of organic farming appeals to “green” eaters, who consider organic food environmentally friendly. Therefore, both empirical data and consumer preferences reveal that the benefits of organic food include less hazardous pesticide, more nutrition, and a farming technique that is more environmentally friendly than non-organic food.

### **Chemical Residues**

Organic food is based on very precise standards of production, and its non-pesticide requirements are an integral part of the identification and labeling of such products. With respect to chemicals, organic agriculture refrains from the use of “synthetic pesticides, herbicides, fertilizers, fungicides, veterinary drugs, synthetic preservatives and additives” (Shepherd et al.3). Thus, the hazardous residues in organic food are restricted to the lowest

amount possible. In fact, many researches have shown the harmfulness of pesticide residues on human health, so pesticide-free organic food is considered much healthier than conventional food.

Studies have shown a relatively low presence of pesticide residue in organic food compared to conventional food. For instance, the amount of two primary pesticides, DDT and LINDANE, is restricted to the lowest pounds per dairy (ppd). DDT residue in organic milk has a mean of 0.0217 ppd and can be as low as non-detectable. In comparison, the mean DDT value in conventional milk is 0.0921 ppd, over four times that of organic milk (Kouba 35). Similarly, the average LINDANE residue in conventional milk is twice that in organic milk (Kouba 35). These two sets of data provide evidence for a lower residue quantity in organic milk compared to conventional milk. Moreover, the Pesticide Data Program in the United States Department of Agriculture monitors pesticide residues in the United States, and their most recent results also prove that there is little pesticide remnants in organic food. In all the organic samples tested, USDA found that 29.5 percent of the samples contain no detectable pesticides, 30 percent contain only one pesticide and 40 percent contain more than 1 pesticide (Pesticide). Hence, the empirical data from USDA further supports that there are lower levels of residue contaminant in organic food. The scientific evidence is crucial in determining the consumer's attitude towards purchasing organic food. As people value healthy food and safe food more, consumers are likely to choose the healthier and safer organic food over the conventional food, thus expands the market of organic food.

Researchers have found a general negative correlation between the exposure to pesticides and health conditions. Pesticides are associated with well-known acute health problems such

as “nausea, dizziness, vomiting, headaches, abdominal pain, and skin and eye problems” (Ecobichon 643). Long-term exposure to pesticides even increases the risks of more serious chronic diseases such as respiratory problems, memory deficits and miscarriages (McCauley et al. 953). Based on the studies by Ecobichon and McCauley et al., pesticides are correlated with many discomforts and diseases, so exposure to pesticides increases the risks of having health problems. Moreover, Kouba studies the effect of pesticides on male farmers and shows a lower sperm concentration among non-organic farmers than organic farmers (36). Suggested by the study of Kouba, men’s health can be negatively affected by constant exposure to pesticides. Additionally, current studies have shown a potential for childhood cancer and Parkinson disease from long-term pesticide contact (Daniels et al. 1068; Firestone et al. 91). According to the various health problems related to pesticide exposure, substantial pesticide intake from diet contributes to health risks. Therefore, compared to conventional food, organic food is healthier in respect to its low pesticide residue. Recognizing the consequences of pesticide intake, consumers tend to choose the safer organic food which has lower pesticide.

### **Nutritional Values and Better Tastes**

Besides the low pesticide residue contamination, another benefit of organic food is good taste and increased nutritious values. A 4-year, 12-billion-pound EU study on the benefits of organic food suggests that some organic foods, such as fruits, vegetables and milk, are more nutritious than non-organic equivalents (Paddock). The researchers carried out many scientific experiments where the findings indicate a high concentration of antioxidants, minerals and other healthy chemicals in organic fruits, vegetables and dairy. For instance,

organic strawberry, blueberry and apples contain up to 40 percent more antioxidants than conventional equivalents (Ungoed-Thomas). Antioxidants minimize rates of natural chemical oxidation of body cells and thus support healthy organs. Clinical studies have confirmed the effectiveness of antioxidants in heart-promotion, thus the intake of antioxidant is beneficial to health (Sies 291). The EU study also found a higher level of minerals such as Zinc and Iron in organic vegetables, which further proves the high nutritional value of organic food (Ungoed-Thomas). Therefore, with a higher concentration of antioxidants and minerals, organic fruits, vegetables and milk are more nutritious and healthier than non-organic ones.

Organic fruits and vegetables are not only more nutritious, but they also have better tastes. A study by Washington State University in 2001 involved a panel of tasters who believed that organic apples taste sweeter (Green). The tasters also claimed that the texture of the organic apples was smoother than those grown conventionally. Many consumers have preferences of organic fruits not only because they are more nutritious, but also because of their better tastes. Some researchers attributed the differences of tastes to the better soil quality in organic farming techniques compared to that in traditional farming (Green). Due to the higher quality of soil which contains more organic matters and natural nutrients, organic fruits yield more fructose, which makes them taste sweeter. In short, many consumers favor organic food over conventional ones because the taste and texture of organic food are generally better.

### **Environmental Impact of Organic Food**

Besides its low pesticide contaminants and higher nutrition, the merits of organic food include its sustainability and positive environmental impacts. The benefits of organic farming

to the wider environment have been studied, and the major advantages are biodiversity, high soil quality and low energy output. On average, organic farms provide more natural habitats for wildlife (Shepherd et al. 18). The soil and water in organic farms generally contain low pesticide remnants, and the absence of hazardous chemicals from pesticides avoids killing non-harmful insects and flora .Biodiversity is important to an ecosystem because it encourages the diversity of species and genes and thus balances the predominance of the growing crop. A system with the coexistence of diverse species tends to yield better quality of crops.

Apart from the preservation of biodiversity, organic farming also improves the quality of soil. Soil Organic Matters (SOM), such as organic and nitrogen compounds, are essential for soil to produce high-quality crops. Organic systems generally have more SOM because they avoid non-organic fertilizers which can be detrimental to the natural organic structure of soil (Shepherd et al. 26). Since organic farms are absent of fertilizers, all the substances recycled in the soil are organic. Thus, since the inputs in organic farms are always organic matters, the SOM returned to soil are higher than in non-organic farms. In this way, organic farms use less hazardous fertilizers, which not only preserve the natural soil structure but also increase the quality of crops.

The third important benefit of organic farming to the environment is its lower emission of carbon dioxide. Haas and Kopke's study compared carbon dioxide emissions from organic and conventional farming. The CO<sub>2</sub> emission of organic farms is only 40 percent that of conventional. Similar results are derived by other researchers: an anonymous study found the ratio of CO<sub>2</sub> emission of organic farms over that of conventional farms to be 34/100. Rogaski

duplicated Haas and Kopke's study and he found the percentage to be 52 (Shepherd et al. 53). The lower levels of CO<sub>2</sub> emission in organic farms is mostly due to fewer energy inputs because fewer fossil fuels are burnt. Organic farms are usually smaller than conventional ones, and thus the average energy input per area is smaller. Therefore, the energy saving feature of organic farms is another aspect of its environmental conservation.

### **Conclusion**

The growing prosperity of organic food industry indicates a greater health concern from the public because organic food contains more nutrients that are essential for good health. The lower pesticide residue is another advantage of organic foods because pesticide exposure can be the cause of various health problems. Since people value environmental protection more than ever, the positive environmental impacts of organic farming, such as biodiversity, better soil quality and less CO<sub>2</sub> emission, are also advantages of organic foods.

## Work Cited

- Daniels, Julie L., Andrew F. Olshan, and David A. Savitz. "Pesticides and Childhood Cancers." *Environmental Health Perspectives* 105.10 (1997): 1068-1077. JSTOR. U. of Maryland McKeldin Library, College Park, MD. 10 Apr. 2009. <<http://www.jstor.org>>.
- Devcich, Daniel A., Irene K. Pedersen, and Keith J. Petrie. "You Eat What You are: Modern Health Worries and the Acceptance of Natural and Synthetic Additives in Functional Foods." *Appetite* 48 (2007): 333-337.
- Ecobichon, D.J. "Toxic Effects of Pesticides." *Casarett and Doull's Toxicology: The Basic Science of Poisons*. Ed. Klaassen C.D. and Doull J. 5th ed. New York: MacMillan, 1996.
- Firstone, Jordan A., Terri Smith-Weller, Gary Franklin, Phillip Swanson, W. T. Longstreth, and Harvey Checkoway. "Pesticides and Risk of Parkinson Disease—A Population-Based Case-Control Study." *Archives of Neurology*. 62 (2005): 91-96. U. of Maryland McKeldin Library, College Park, MD. 20 Apr. 2009 <<http://www.archneurol.com>>.
- Fotopoulos, C. and A. Krystallis. "Organic Product Avoidance—Reasons for Rejection and Potential Buyers' Identification in a Countrywide Survey." *British Food Journal* 104 (2002): 233-250. ScienceDirect. U. of Maryland McKeldin Library, College Park, MD. 6 Apr. 2009 <<http://www.sciencedirect.com>>.
- Green, Emily. "Organic Growing Is Best." *Organic Consumers Association*. (2004). 23 Apr. 2009 <<http://www.organicconsumers.org/Organic/orgapples.cfm>>.
- Hasler, Clare M. "Functional Foods: Benefits, Concerns and Challenges, a Position Paper

from the American Council on Science and Health.” *The Journal of Nutrition* 132 (2002): 3772-3781. 13 Apr. 2009

<<http://jn.nutrition.org/cgi/content/abstract/132/12/3772>>.

Hole, D.G., A.J. Perkins, J.D. Wilson, I.H. Alexander, P.V. Grice and A.D. Evans. “Does Organic Farming Benefit Biodiversity?” *Biological Conservation* 112 (2005): 113-130. ScienceDirect. U. of Maryland McKeldin Library, College Park, MD. 6 Apr. 2009

<<http://www.sciencedirect.com>>

Koch, Kathy. "Food Safety Battle: Organic Vs. Biotech." *CQ Researcher* 8.33 (1998): 761-784. *CQ Researcher Online*. CQ Press. U. of Maryland McKeldin Library, College Park, MD. 14 Apr. 2009

Magkos, Faidon, Fotini Arvaniti and Antonis Zampelas. “Organic Food: Buying More Safety or Just Peace of Mind? A Critical Review of the Literature.” *Critical Reviews in Food Science and Nutrition* 46 (2006): 23-56. *Academic Search Premier*. EBSCOhost. U. of Maryland McKeldin Library, College Park, MD. 6 Apr. 2009 <

<http://web.ebscohost.com>>.

McCauley, Linda A., W. Kent Anger, Matthew Keifer, Rick Langley, Mark G. Robson and Diane Rohlman. “Studying Health Outcomes in Farmworker Populations Exposed to Pesticides.” *Environmental Health Perspectives* 114.6 (2006): 953-960. 12 Apr. 2009

<<http://www.ehponline.org/members/2006/8526/8526.pdf>>.

Paddock, Catharine. “Organic Food is More Nutritious Say EU Researchers.” *Medical News Today*. 29 Oct. 2007. 16 Apr. 2009.

<<http://www.medicalnewstoday.com/articles/86972.php>>.



“Pesticide Data Program—Annual Summary Calendar Year 2005.” 16 Apr. 2009

<<http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5049946>>.

Shepherd, Mark, Bruce Pearce, Bill Cormack, Lois Philipps, Steve Cuttle, Anne Bhogal,

Peter Costigan and Roger Unwin. “An Assessment of the Environmental Impacts of

Organic Farming.” 5 Apr. 2009

<[www.defra.gov.uk/farm/organic/policy/research/pdf/env-impacts2.pdf](http://www.defra.gov.uk/farm/organic/policy/research/pdf/env-impacts2.pdf)>.

Sies, Helmut. “Oxidative Stress: Oxidants and Antioxidants.” *Experimental Physiology*. 82

(1997): 291-295. *Exp Physiol*. U. of Maryland McKeldin Library, College Park, MD. 20

Apr. 2009 <<http://www.ep.physoc.org>>.

Siderera, Yona, Alain Maquet and Elke Anklam. “Need for Research to Support Consumer

Confidence in the Growing Organic Food Market.” *Trends in Food Science and*

*Technology* 16 (2005): 332-343. ScienceDirect. U. of Maryland McKeldin Library,

College Park, MD. 10 Apr. 2009 <<http://www.sciencedirect.com>>.

Ungoed-Thomas, Jon. “Official: Organic is Really Better.” *TimesOnline*. 29 Oct. 2007. 16

Apr. 2009. <<http://www.timesonline.co.uk/tol/news/uk/health/article2753446.ece>>.

Williams, Christine M. “Nutritional Quality of Organic Food: Shades of Grey or Shades of

Green?” *Proceedings of the Nutrition Society* 61 (2002): 19-24.