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Organic Food:
Is It Worth the Money?

by
Suzanne R. Carpenter and Richard H. Wallace
Department of Chemistry and Physics
Armstrong State University, Savannah, GA

It had been a busy day. Gracie left work early to stop by the store to pick up something quick for dinner before heading out to spend time with her friends enjoying a jazz concert that evening. As she entered the market she was greeted with the smell of freshly-brewed coffee from the coffee counter as she turned the corner into the produce area. She was going to have a light dinner because she was planning to go out for dessert after the concert.

She settled on an arugula and berry salad with a piece of wild salmon (which happened to be in season) with a maple syrup/balsamic vinaigrette dressing. She had prepared this meal many times in the past when she wanted something light and quick and the berries in the market looked wonderful. As she paused at the berry section, she found herself asking which ones she should buy. Blueberries, raspberries, or blackberries—they all looked so tasty! The blackberries looked best so the choice was made. Then she realized there was another decision to make: organic ($4.99/pint) or conventional ($2.50/pint). She recalled having seen organic produce at the farmer's market in Forsyth Park the previous Saturday while walking her dog George and wondering if organic food was really worth the higher price. Now she had to make another decision—which blackberries should she buy?

Gracie asked herself what it meant for fruits and vegetables to be labeled "organic." She remembered hearing her friends talk about their organic chemistry courses when she was in college; was that somehow related? Knowing her cell phone was in her purse she had an idea. Within seconds she was looking at a long, somewhat intimidating, list of possible sites to further explore the question. She rapidly found a link that looked to be useful: "*Organic agriculture* refers to farming that minimizes or excludes the use of synthetic chemicals." That seemed on the surface to be a good idea but was there more to be gained by purchasing (and eating) organic foods? On another site she read something about antioxidants and organic fruits and vegetables. Were antioxidants good or bad and were they present in both conventional and organic fruits and vegetables?

Questions

1. What does "organic" mean when used to describe food products?

2. What is the history of organic agriculture in the United States?

3. Why are antioxidants thought to be part of a healthy diet in the first place?

4. Why is organic food more expensive?

5. What scientific evidence exists concerning the health benefits of organic food?

6. What concerns would arise if the entire world switched to an organic diet?

Resources

Films

- *Grow!* (Anthony-Masterson Productions)
- *King Corn* (Bullfrog Films)

Print

- Pollan, M. 2006. *The Omnivore's Dilemma*. Penguin Press: New York.

Case Studies

- Carris, L.M. and N.L. Jacobson. 2010. Banana split: to eat or not to eat. Buffalo, NY: National Center for Case Study Teaching in Science. <http://sciencecases.lib.buffalo.edu/cs/collection/detail.asp?case_id=541&id=541>
- Dinan, F.J. and J.F. Bieron. 2002. To spray or not to spray: a debate over malaria and DDT. Buffalo, NY: National Center for Case Study Teaching in Science. <http://sciencecases.lib.buffalo.edu/cs/collection/detail.asp?case_id=406&id=406>

References

Asami, D.K., Y.-J. Hong, D.M. Barrett, and A.E. Mitchell. 2003. Comparison of the total phenolic and ascorbic acid content of freeze-dried marionberry, strawberry, and corn grown using conventional, organic, and sustainable agricultural practices. *Journal of Agricultural and Food Chemistry* 51: 1237–1241.

Baranski, M., D. Srednicka-Tober, N. Volakakis, C. Seal, R. Sanderson, G.B. Stewart, ..., and C. Leifert. 2014. Higher antioxidant and lower cadmium concentrations and lower incidence of pesticide residues in organically grown crops: a systematic literature review and meta-analyses. *British Journal of Nutrition* 112: 794–811.

Bavec, M, M. Turinek, S. Grobelnik-Mlakar, A. Slatnar, and F. Bavec. 2010. Influence of industrial and alternative farming systems on contents of sugars, organic acids, total phenolic content, and the antioxidant activity of red beet. *Journal of Agricultural and Food Chemistry* 58: 11825–11831.