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Dear Editor,

Regarding the letter to Science from Clancy et al.:

Drawing definitive conclusions about the possible nutritional benefits of organic foods based on analyses of the published literature is premature for the simple reason that so few valid studies, particularly long-term trials, have been conducted to date. Neither those who advocate for the nutritional superiority of organic food nor those who believe there is no difference have indisputable evidence for their conclusions. Even when screens are applied to select published studies that appear to be statistically valid, a more comprehensive perspective will emerge only as the body of work continues to increase.

Meanwhile, as Clancy et al. admit, there are enough published studies to suggest that organic fruits in particular might have higher levels of phytochemical compounds than those grown conventionally. However, the underlying causes for this possible difference are yet not well understood.

Clancy et al. assert that “cultivar selection may be as important or more important than the production method.” This is a simplistic assessment. A multitude of additional factors could influence phytochemical content in fruits and vegetables, including fruit size, stage of development, ripening level, disease and/or pest pressure, soil conditions, fertilization practices, irrigation, pesticide application, season, location, climatic conditions including light intensity, and post-harvest processing and storage (Zhao et al. 2006).

A larger and perhaps more pertinent question than “Are organic crops nutritionally superior?” is “Is it possible for growers to enhance phytochemical content of their crops using management practices and, if so, how?” Scientists who are studying the nutritional profiles of crops grown under organic and conventional management are taking steps toward answering this question.

Some of the characteristics of research that will be useful in this endeavor include multidisciplinary involvement in project design and data analysis; assessment of crop nutrient content over multiple years; documentation of soil history, soil type, and management practices used; information on cultivars grown, fruit maturity status, fruit size, and harvest procedures; and valid statistical design including replication, randomization, and use of a control.

Sincerely,

Jane Sooby
Organic Research Specialist
Organic Farming Research Foundation
P.O. Box 440
Santa Cruz, CA 95061
Phone 831-426-6606
Email jane@ofrf.org

Xin Zhao
Assistant Professor
Horticultural Sciences Department
University of Florida
P.O. Box 110690
Gainesville, FL 32611-0690
Phone 352-392-1928 ext. 209
Email: zxin@ufl.edu

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References

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Zhao, X., E.E. Carey, W. Wang, and C.B. Rajashekar. 2006. Does organic production enhance phytochemical content of fruit and vegetables? Current knowledge and prospects for research. *HortTechnology* 16:449-456.