Readers' Forum

Nutritional Quality of Organically Grown Vegetables

Do organically grown vegetables have a higher mineral content than those that are grown using conventional fertilizers? Judging by the number of inquiries I receive each week, this question is being asked around the country. Fueling this speculation is a report issued by Firman E. Bear, from Rutgers Univ., that supposedly demonstrated the nutritional superiority of vegetables grown using only organic soil amendments. The data from this paper have been reported in numerous sources, including seed catalogs, trade journals, and even on bags at a California supermarket. I received requests recently from Great Britain and Sweden for copies of this new "Bear Report."

Unfortunately, the Bear Report is neither new nor does it support the superiority of organically grown vegetables. The original report is now 45 years old (Bear et al., 1948). The purpose of Bear's research was to compare the mineral content of vegetables grown in a line of states extending north from Georgia to New York and west to Colorado. At no time were synthetic and organic fertilizer practices compared for their effects on nutritional quality.

In published articles that cite the report, figures are listed that purportedly show the mineral composition of vegetables grown organically and conventionally. Surprisingly, the numbers are exactly the same as those in the original report. The difference is that the words "organic" and "conventional" have been substituted for the

words "highest" and "lowest." Bear reported that the highest and lowest mineral content of >200 samples as an indication of the study's variability. It had nothing to do with fertilizer practice.

This erroneous version of the report has been appearing sporadically for a number of years. Who changed it originally and why is still a mystery. Unfortunately, once it is seen in print, it usually remains unchallenged and is printed in other places. Only when someone calls Rutgers Univ. and asks for a copy of the report can the record be set straight. The callers are usually surprised to discover the deception. In most cases, retractions have been printed, as everyone agrees on the danger of reporting a false study in such a controversial area.

Getting back to the original question—do organically grown vegetables really have a greater mineral and vitamin content than produce grown conventionally? Studies have demonstrated that excessive levels of N from conventional fertilizers can result in decreased levels of vitamin C and sucrose (Hornick and Parr, 1987). These studies, however, compared only synthetic fertilizers. Making comparisons between organic and synthetic fertilizers is very difficult. The biggest problem is minimizing the many sources of variation (Hornick, 1992). These include soil types, climate, crop varieties, stage of harvest, postharvest handling, and correlation between the nutrient content of organic fertilizer amendments and their conventional counterparts. Studies that have compared mineral contents of vegetables grown organically with those grown using synthetic fertilizers generally have found no consistent differences (Hornick, 1992).

If there seems to be no difference in mineral content of organically grown vegetables, what about taste? This,

too, does not seem to be supported by the literature. Schutz and Lorenz (1976) found no definitive answer when they looked at lettuce, carrot, broccoli, and snapbeans. Yet, many growers and consumers of food grown organically will argue for the superior flavor of their commodities. This could be because much of the vegetables grown organically are grown and consumed locally. As a result, growers are more apt to use varieties that have better flavor than those that have been bred for shipping. I doubt if anyone would argue that there is no difference in the taste of a tomato grown at a nearby farm, picked vine-ripe, and available to the consumer that day as opposed to one picked mature-green, cooled below 55F, and shipped 2000 miles. I would argue that any produce grown locally—either grown organically or conventionally—is superior in taste to almost any transported commodity.

The argument over the nutritional quality of vegetables grown in one system as compared to another will most likely continue. This letter does not address the issue of pesticide use and possible residues in our food supply. It is important to note, however, that the scientific literature does not support the belief that vegetables grown with organic fertilizers contain higher levels of minerals and vitamins. So, the next time someone calls asking about the Bear Report, please set the record straight.

Literature Cited

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