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TIME

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Eating Your Veggies: Not As Good For You?

By M.J. Stephey

Declining Fruit and Vegetable Nutrient Composition: What Is the Evidence?

By Donald R. Davis

Journal of HortScience; February 2009, 5 pp.

The Gist:

If the economy isn't grim enough for you, just check out the February issue of the *Journal of HortScience*, which contains a report on the sorry state of American fruits and veggies. Apparently produce in the U.S. not only tastes worse than it did in your grandparents' days, it also contains fewer nutrients — at least according to Donald R. Davis, a former research associate with the Biochemical Institute at the University of Texas, Austin. Davis claims the average vegetable found in today's supermarket is anywhere from 5% to 40% lower in minerals (including magnesium, iron, calcium and zinc) than those harvested just 50 years ago. ([Read about Americans' Incredible, Edible Front Lawns.](#))

Highlight Reel:

1. *On the Difficulty of Comparing "Then" and "Now:"* Davis is quick to note that historical data can sometimes be misleading, if not altogether inaccurate. Take early measurements of iron in foods: because scientists failed to sufficiently remove clinging soil, iron levels appeared unusually high in certain vegetables like spinach (which gave rise to the myth that it contained exorbitant amounts of iron — a notion further propagated by the popular cartoon character, Popeye). Then again, good historical data provides the only real-world evidence of changes in foods over time, and such data does exist — one farm in

Hertfordshire, England, for example, has archived its wheat samples since 1843.

2. *On the So-Called "Dilution Effect"*: Today's vegetables might be larger, but if you think that means they contain more nutrients, you'd be wrong. Davis writes that jumbo-sized produce contains more "dry matter" than anything else, which dilutes mineral concentrations. In other words, when it comes to growing food, less is more. Scientific papers have cited one of the first reports of this effect, a 1981 study by W.M. Jarrell and R.B. Beverly in *Advances in Agronomy*, more than 180 times since its publication, "suggesting that the effect is widely regarded as common knowledge." ([See pictures of fruit.](#))

Less studied, though, is the "genetic dilution effect," in which selective breeding to increase crop yield has led to declines in protein, amino acids, and as many as six minerals in one study of commercial broccoli grown in 1996 and '97 in South Carolina. Because nearly 90% of dry matter is carbohydrates, "when breeders select for high yield, they are, in effect, selecting mostly for high carbohydrate with no assurance that dozens of other nutrients and thousands of phytochemicals will all increase in proportion to yield."

3. *On the "Industrialization" of Agriculture*: Thanks to the growing rise of chemical fertilizers and pesticides, modern crops are being harvested faster than ever before. But quick and early harvests mean the produce has less time to absorb nutrients either from synthesis or the soil, and minerals like potassium (the "K" in N-P-K fertilizers) often interfere with a plant's ability to take up nutrients. Monoculture farming practices — another hallmark of the Big Ag industry — have also led to soil-mineral depletion, which, in turn, affects the nutrient content of crops.

The Lowdown:

If you're still not buying the whole "organic-is-better" argument, this study might convince you otherwise. As Davis points out, more than three billion people around the world suffer from malnourishment and yet, ironically, efforts to increase food production have actually produced food that is *less* nourishing. Fruits seem to be less affected by genetic and environmental dilution, but one can't help but wonder if it's even possible to avoid nutritionally bankrupt veggies. Supplementing them is problematic, too: don't look to vitamin pills, as recent research indicates that [those aren't very helpful either](#).

The Verdict: Skim

[See the top 10 food trends of 2008.](#)

[See TIME's 1978 article, "The New American Farmer: Get Big or Get Out."](#)

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