

Blame factory farming, not organic food

To the editor:

Clearly, editorials provide a journal the opportunity to express opinions. But your October editorial “Why silence is not an option” (*Nat. Biotechnol.* **24**, 1177, 2006) goes too far by misrepresenting some basic facts.

The editorial laments that biotech crops get bad press whereas organic crops, when something goes awry, seem to come away unscathed. Your example is the recent contamination of fresh spinach with the food pathogen *Escherichia coli* O157:H7, which led to numerous human illnesses and, up to now, four deaths. You insinuate that organic spinach was the carrier of the pathogen. That is not the case. The manufacturing codes from the contaminated bags of spinach have, to date, all been from conventionally and not organically grown spinach. The conventionally grown spinach was packaged at the same warehouse as Earthbound Farm’s organic spinach¹.

You go on to decry that no one has pointed out that “the combinations of ‘organic’ and ‘spinach’ [are] simply a time-bomb waiting to go off.” You provide absolutely no evidence for this radical claim. I would expect more substance and less hyperbole from a scientific journal. The problem of *E. coli* O157:H7 contamination is complex. The largest known reservoir of these pathogens is the colon of cattle. When cattle are fed large portions of grain—as is the case in feedlots and large factory farms—both the number of *E. coli* and their acid resistance rise significantly^{2–4}. This increases the likelihood that pathogenic *E. coli*—including O157:H7—will survive and reproduce. Perhaps 30–50% of grain-fed cattle harbor *E. coli* O157:H7. Because the strain is acid resistant, if it contaminates uncooked food it survives the acid environment of human stomachs, which normally kills most bacteria, and then can cause serious illness.

Manure and runoff from factory farms and feedlots can easily pollute streams and groundwater—water used to irrigate those huge vegetable farms in California that produce most of the produce for the United States, including fresh spinach. The US Food and Drug Administration sees contamination of irrigation water

supplies as a primary means of spreading *E. coli* O157:H7 and warned California growers about this danger in a letter in November 2005 (ref. 5). Factory farming and concentration of the food supply is the issue here, not organic food. Your editorial got it wrong.

In fact, researchers studying *E. coli* O157:H7 found that when cattle feed was shifted from grain to forage (hay

or silage), both the pathogen population in the cattle and the bacterial acid resistance dropped drastically^{2–4}. Although it may be hard to swallow, you’re probably much safer eating a hamburger made from grass-fed beef slaughtered in a local slaughter house and topped with a piece of lettuce from your neighbor’s organic farm that used the grass-fed cow’s composted manure as a fertilizer than you are eating products of all-American industrial agriculture.

I would agree with your editorial’s conclusion that “there is a basic truth that bears repetition: and that is that basic truths bear repetition.” The basic truth I missed in your editorial is that the recent food contamination has to do with systemic problems in conventional industrial food production and processing. Don’t blame organic farming.

COMPETING INTERESTS STATEMENT

The author declares that he has no competing financial interests.

Craig Holdrege

*The Nature Institute, 20 May Hill Road, Ghent, New York 12075, USA.
e-mail: craig@natureinstitute.org*

1. <http://www.ebfarm.com/Press/SpinachUpdates/index.aspx>.
2. Diez-Gonzalez, F. *et al. Science* **281**, 1666–1668 (1998).
3. Russell, J.B. *et al. J. Dairy Sci.* **83**, 863–873 (2000).
4. Callaway, T.R. *et al. J. Dairy Sci.* **86**, 852–860 (2003).
5. US Food and Drug Administration. Letter to California Firms that Grow, Pack, Process, or Ship Fresh and Fresh-cut Lettuce, November 4, 2005. <http://www.cfsan.fda.gov/~dms/prodltr2.html>

Nature Biotechnology responds:

It is instructive that a proponent of organic agriculture is outraged and prompted to speak out against an editorial that intentionally (and ironically) sought to apply to organic spinach the types of media distortions that are all too often applied to genetically modified (GM) products. If only the industrial and academic research community were as forthright in defending GM products from media distortions and scaremongering, our editorial would have been unnecessary.

When we wrote that “all spinach was bad for consumers, organic fresh produce *per se* was hazardous” and “combinations of ‘organic’ and ‘spinach’ [are] simply a time-bomb waiting to go off,” our intention was not to alert readers to the explosive dangers of organic spinach, nor to tarnish the image of spinach or organic food as a whole—it was simply to illustrate the preposterousness of some of the claims concerning GM food that are bandied about by the media without challenge.

As stated clearly in our editorial, the facts presented concerning the suspected source of contamination were correct at the time *Nature Biotechnology* went to press. Subsequently, Natural Selections Foods’ Earthbound Farm did issue a press release (the release mentioned in ref. 1 above appears to be no longer active on the website) claiming that manufacturing codes from packaging retained by patients were all from nonorganic spinach—a claim parroted widely and without critique in the media; however, what was not widely reported was that these codes were obtained for only a relatively small number of victims.

