

Can Bernie Sanders act like a progressive on GMOs, overcome tribal allegiances, embrace science?

When you strike a reflex hammer on the patellar ligament below the knee, the quadriceps femoris muscle is stretched, sending a signal that relays in the spinal cord, and the muscle contracts. It happens independent of any thoughts in your brain, and probably it's the most famous bodily reflex, so it has become a metaphor for any time that people take action on some issue, with apparently no influence from their brains. A knee jerk reaction is good during a neurological exam –unless it's hyperactive, too strong, which can indicate problems in the spinal cord or brain. But whether normal or extra-strength, the reflex is not so good when it refers to people abdicating their intelligence on an issue that's scientifically and politically complex.

Summer's tale: Two sides of the organic culture

Considering issues that revolve around safety of genetic modification (GM) biotechnology and conventional versus organic food, it's pretty hard to get through a day on the Internet, or in our public interactions, without witnessing people knee-jerking about food when they should be thinking instead. And it affects people in all walks of life.

A few weeks ago, for instance, I passed through Ashland, Oregon, a small artsy town that's known for being home to the Oregon Shakespeare festival. This year, they're performing [Much Ado about Nothing](#), which seems appropriate, since Ashland is in Jackson county, which [voted recently to ban GMO crops](#). County officials later noted that they're [not enforcing the ban](#), perhaps because of the irony with the timing of the Shakespearean play, but you wouldn't know it by the look of the restaurant menus in town. A good fraction of their listings consisted of overpriced salads and sandwiches — I mean seriously overpriced, like a simple sandwich for \$18 — and to justify that, items were prefixed with the labels “organic” and “gluten-free”, and some places had little notes on the menu saying that everything was GMO-free.

They can get away with that, and the Ashland restaurants were mobbed, because most of the tourists walking the streets appeared mostly to be affluent retirees, Portlandia style. They buy everything at the Whole Foods Market, because they believe that organic is healthier than conventional. There's [no evidence](#) for this. But let's remember the Bard and make no ado about this. Organic is largely a cultural thing, a status symbol, and, after all, those tourists in Ashland can afford it.

That perspective dovetails with a well-circulated [New York Times Op-Ed piece](#) three years ago by Bjørn Lomborg after an equally well-publicized [Stanford University study](#) had demonstrated that high levels of fruits and vegetables do indeed enhance health (no surprise there), but regardless of whether they're organic, conventional, or GMO-free. Lomborg, trained as a political scientist but known for his cost-benefit research on environmentalism, is a business expert at the Copenhagen Business School. He pulls no punches in his sustainability analysis:

Organic food also costs 10 percent to 174 percent more for fruits, vegetables and meat... [A]

decrease of just 10 percent in fruit and vegetable consumption in the U.S. because of higher prices would cause an increase in cancer of about 4.6 percent of the total number of cancers, or some 26,000 additional cancer deaths annually. The Stanford study emphasizes the importance of eating fruits and vegetables “however they are grown,” but the scale is missing. Eating more fruits and vegetables is incredibly more important than avoiding already well-regulated pesticides...

A [poll conducted and published by Gallup](#) just last year found that 45 percent of Americans seek out organic food, while 15 percent of the population actively avoids such products. As expected, the same poll found that income plays an important role in whether or not people buy organic. Among wealthy Americans, a higher percentage seek organic food and a lower percentage actively avoid it, compared with low income Americans. But the difference between the two income populations is not profound. For those with household annual incomes above \$75,000, 49 percent buy organic; for those below \$30,000, it's 42 percent.

Not long after my visit to Ashland, I had a quite different experience in Portland.

At a grocery store, a young mother with a small child in the shopping cart started apologizing to those of us waiting on line behind her that she was delaying us. She had just a few items, including an organic melon. She was hoping that the bill would come to \$34 instead of \$45, and her attempt to figure out what she might want to give up buying so she could afford organic produce took some time.

While all of this was going on, her items were up on a screen that everyone could see. The organic melon was the most expensive item on her list. So, after she apologized a second time for delaying everyone and we all said that there's no problem, I said casually that she could probably save a lot on groceries by buying conventional. I added that, by the way, organic produce is not only more expensive, it is not healthier anyway. She expressed gratitude for the gesture, but she was having none of the attempt at science and common sense. She declared that organic is definitely healthier.

Listening to scientists: First step in overcoming the knee-jerk reaction

Literal reflexes, like the one triggered at the patellar ligament, are hardwired, which is good because we need them. But as for the metaphorical knee-jerk, the good news is that the brain remains perfectly capable of clear thought, and once educated on an issue people can, and sometimes do, change their minds. They can overcome the reflex to jump on the bandwagon even when many other people on the wagon are their political allies — part of their tribe, so to speak. Buying organic is a tribal rite of passage for many people.

You don't see that happen much with certain types of belief — like religious views, for example, which are ingrained in people's minds from early childhood, and can be harder to change. But when empirical data matter, scientists and even segments of the public can and do change their views. Scientists are human, which means they can act irrationally, so of course some scientists are resistant to empirical evidence, and refuse to change their perspectives. But most of them do change, and that's how science advances. It also happens when intelligent, educated people, including politicians and other leaders,

consider what scientists are saying regarding issues of immediate pragmatic significance.

One example of this is the policy discussion surrounding the safety of food biotechnology. On this issue, an example of a politician who still needs to overcome the knee-jerk reflex to be against food biotechnology is Sen. Bernie Sanders. He is chosen here as an example, because his presidential campaign makes him the most visible politician who is strongly against GMOs, and because he takes strong positions in favor of science on all issues apart from agricultural biotechnology. Here's a [tweet](#) from him in July, just as his campaign began taking off:

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What a refreshing and clear cut affirmation of science and the power of the consensus! Scientists are convinced that climate change is real, vaccines are safe, and humans evolved from our shared ancestry with apes. Most Republicans are still trying to do everything in their power to avoid talking about consensus on these issues.

Sanders is referring to the consensus view on climate change and we should applaud what he says. Whatever one's views about whether climate change portends catastrophe or what if any steps should be undertaken to address it, the fact of human induced climate change is not up for debate, at least by the overwhelming percentage of scientist. But it's different for the public. A [recent Pew study](#) found huge gaps between what the scientific community says and what the general public believes regarding important issues. On climate change, 87 percent of American Association for the Advancement of Science (AAAS) scientists say that human activity is the cause, but only 50 percent of the general public agrees.

The same polls shows similar gaps exist between the scientific community on the need for childhood vaccines, that human population growth is a major problem, offshore drilling, and the evolution of humans and its importance in science education, and Sanders sides with the scientific community on all of this. No surprise. His views coincide with his tribe — liberal Americans — overwhelmingly agree with him.

But what happens when science conflicts with the views of your tribe?

Genetically modified foods are safe — if you embrace science. The Pew poll noted above also found that 88 percent of AAAS scientists believe that GM foods that have been approved by the government are safe for human consumption. Where is Sanders reaffirming that scientific consensus? Or are politicians allowed to pick and choose what science they want to embrace based on whether their tribe feels they

same way? Instead, Bernie Sanders goes Republican and kicks science to curb when it's inconvenient — an inconvenient truth, as Al Gore might say. It's easy to be a fellow traveler. The true test of independence, and indeed of thinking scientifically, is following the evidence even when it conflicts with your tribal views. That's where real scientific thinking, independence and integrity comes into play?

Sanders position is illiberal. Having an anti-corporate approach leads people to positions against pharmaceutical corporations, for instance, but that doesn't make them speak out against the drugs that companies make. Yes, there are some very vocal people who reject vaccines, but they are a fringe, anti-science element. For everyone else and all progressives, it's the opposite; the drugs and vaccines are needed for health care and prevention, here and around the planet. The case then against the pharmaceutical companies is about the cost of the drugs and the availability to the masses.

Applying logic, and overcoming the knee-jerk reflex, a democratic socialist should approach the GM agriculture industry in a similar way.

Real progressives like GM technology

Separating the science from the non-science issues is exactly what Bill Gates has advocated. When interviewed recently about GM agricultural issues at the University of California at Berkeley, he began with the following [perspective](#):

It's definitely worth splitting out two different issues. One is what the pricing and intellectual property is going to be for this stuff and is that appropriate, and the second is 'are there any long term effects?

Gates discusses the potential of new technologies like RNA interference as well as the potential benefits of GM technology overall, and the safety studies. He's very enthusiastic, particularly about Golden Rice, which the Gates Foundation is supporting in partnership with the [International Rice Research Institute](#). Golden Rice potentially can prevent hundreds of thousands of cases of blindness in children each year because it's engineered to contain high levels of beta carotene. Gate's goal is to end hunger by 2030 and like many others who are interested in changing the world he recognizes that such a goal depends on technology. Like genetic modification.

Gates understands the progressive power of technology. It's a message embraced by Hillary Clinton as well. She has [endorsed GM agricultural technology](#) and research as part of her agenda. What about other high profile liberal Democrats? Based on their 2013 vote in the U.S. Senate on GMO labeling, it's possible to make an educated guess as to who is supportive of GM technology in agriculture. The Senate voted overwhelmingly against mandatory GMO labeling, in part because of opposition from many [progressive Democrats](#), such as Al Franken, Bob Menendez, and Elizabeth Warren. Not Bernie Sanders though.

Hillary Clinton and other progressives support GM technology not because they are compromising their liberal values, but for the opposite reason: biotechnology is progressive. After reviewing what the overwhelming majority of scientists, economist and food experts have concluded after exhaustive, they've decided to endorse the consensus: GMOs are not only safe, genetic modification is a progressive

technology.

People committed to addressing human nutrition and sustainability and really want to do something about the enormous food and farming challenges we face on a global scale are not so quick to abandon consensus science. They overcome the jerk reaction, rooted in our tribal view of the world that sometimes tells us “avoid this new thing that you don’t know about”. They think like progressives.

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