



Banff Pork Seminar
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News Feature

Winning the battle of public misconception about food

McGill University Professor Dr. Joe Schwarcz has spent a long career working to correct public misconceptions about science. He hasn't been short of work.

These days the field of food and agriculture provides rich fodder for that discussion. Schwarcz weighed in on the issues of the day at the 2017 Banff Pork Seminar in Banff, Alta. Jan. 12. His goal was to talk to the pork industry about what he has learned about winning the battle of public misconception about food.

Not surprisingly, genetic modification was a key part of the discussion. The herbicide glyphosate is at the center of a large body of criticism, says Schwarcz in a paper provided to delegates in conference proceedings. It is an example of how misguided science is creating wild misconceptions about food.

“Half of All Children Will Be Autistic by 2025, Warns Research Scientist at MIT.”

That headline has triggered both fear among the public and scathing attacks about irresponsible fear-mongering by scientists, he says. So, why are we destined for such a tragedy, and just who is this prophet of doom at MIT?

The story is really about glyphosate, a non-selective herbicide that proved effective at weed control, but really didn't get any traction as a villain in the public eye until Monsanto introduced crops genetically altered to be resistant to the herbicide.

History repeating

Historically the introduction of any new technology, be it pasteurization, vaccination, microwave ovens or cell phones, has raised concern, and so it was with genetically modified organisms (GMOs), says Schwarcz. There were allegations that the effects of GMOs on people's health had not been adequately tested and we were all “guinea pigs.”

But scientific organizations and regulatory agencies around the world dismissed the concern that genetic modification alters the composition of the edible portions of these plants in any significant way.

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Recently, worries about safety have expanded to include the supposed toxicity of glyphosate itself and its residues in food. French researchers stirred up a dust storm with the claim that eating corn genetically modified to resist glyphosate can cause tumors as well as kidney and liver problems.

The study precipitated an outpouring of anti-GMO feelings around the world with activists saying, "I told you so." They clamored for genetically modified foods to be immediately taken off the market, they slung piles of verbal fecal matter at Monsanto, and called GMOs the "new thalidomide."

But there were issues. That science was ultimately rejected and the published paper retracted by the science journal that ran it.

MIT example

Stephanie Seneff, a research scientist at MIT has published articles linking the chemical to gastrointestinal disorders, obesity, diabetes, heart disease, depression, Alzheimer's disease and infertility.

Her main thesis is that glyphosate disrupts gut bacteria and interferes with cytochrome enzymes. She presents no relevant human evidence, says Schwarcz.

There are also flagrant attempts to snow people with a mass of irrelevant data to make a case for glyphosate being the curse of our lives. Seneff's most spurious argument is the correlation between increased use of glyphosate and increasing rates of autism and celiac disease.

What we have here is the classic fallacy of confusing "association" with "cause and effect." Instead of glyphosate, one could just as well link an increase in these conditions, which is itself contentious, with an increase in coffee consumption, cell phone use, flat screen TVs, Chinese imports or sales of organic produce.

The fact that the Seneff paper is scientifically poor has not been an impediment to activists promoting it as gospel. A widely circulating article claims to reveal "The real reason wheat is toxic." "You're going to want to sit down for this one," warns the writer of the article who calls herself the "Healthy Home Economist. "I've had some folks burst into tears in horror when I passed along this information before," she says.

In any case, even if glyphosate is an evil chemical, it cannot do its mischief without exposure. Studies show the actual secreted amount in the general population is 1-3 micrograms/L. This corresponds to 1/5000th of the ADI, which actually has a 100 fold safety factor already built into it. Essentially then, our exposure to glyphosate as a residue in food is insignificant.

"So, if we are looking for causes of our ailments, we need to look elsewhere. I'll also gladly wager Dr. Seneff that half of our children will not be autistic by 2025," says Schwarcz.

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The future of GM crops

A real question is to ask what the state of genetically modified crops will be by 2025? So far, the importance is proof of concept: we now know that it is possible to alter traits in plants in a scientific way that is more specific than the haphazard process of cross breeding. The future may yield crops with improved nutritional value, crops that can grow in salty soil, and who knows what else?

“Given that by 2050 some 9-10 billion people will be coming to dinner, we have to consider every technology that will help feed them. No, genetic engineering will not solve all the world’s problems. It is just one of the tools that can help. It would be irresponsible to turn our backs on this technology, especially given that there isn’t a single credible study that demonstrates any ill effect in people despite more than twenty years of widespread consumption of foods with components derived from GM canola, soy and corn.

Can unforeseen circumstances arise? Possibly. There is a risk with pursuing any novel scientific venture. But the biggest risk is taking no risk at all. That is guaranteed to stagnate progress.

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A sampling of Schwarcz logic

A powerful presentation from Joe Schwarcz at the Banff Pork Seminar 2017 had many nuggets of knowledge. Here is a condensed version of some of his comments.

- The task of separating sense from nonsense is more difficult than ever. There is so much information today, much of it not useful. So you can cherry pick results. And you can publish anything; all you have to do is pay the page rate.
- Biggest thing I face is that something that is natural is safe. Much of our life is spent dealing with the ravages of nature.
- Number of pesticides does mean risk. There may be 36 pesticides registered to be used with apples, but in reality only two or three would be used.
- It always comes down to risk and rewards.

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- One thing that really ticks me off is the battle between organic and conventional agriculture. There is room for both. But organic will be a niche market because we cannot feed the world that way.
- Hazard and risk are different. Hazard is the potential to do harm. Risk is hazard multiplied by exposure. A grizzly bear has a high hazard for harm in the wild, but in a zoo the risk is managed. Sunshine is a hazard but you can manage the risk.
- We have to keep an eye on genetic modification. But life is full of risks; it's a matter of benefits.
- Chemicals are not to be feared or worshipped. They are to be understood.
- The dose makes the poison.