On Nutrition: by Helayne Waldman, Ed.D., N.E.

What's in your shopping cart?

If you've been to the supermarket lately and purchased a typical array of goods – milk, corn flakes, canned food, perhaps some soy milk – I've got news for you. You've brought home a shopping bag full of genetically engineered (GE) ingredients, according to the Center for Food Safety in Washington, D.C.

"The genetic engineering of our food may well be the most profound alteration in our diet since the advent of agriculture ten thousand years ago," says Andrew Kimbrell, the Center's eloquent director.

I spoke with Kimbrell a few weeks back about his current life's work fighting the domination of Big Agra and the spread of GMO (genetically modified organisms). Kimbrell made it painstakingly clear that rather than "feeding the world" as promised, GM crops and foods may be doing exactly the opposite – harming wildlife, harming humans, and harming the very ecosystem that sustains us.

Although biotechnologists are quick to report that people have been messing with the food supply for centuries, "genetic engineering differs profoundly from anything done before," says Kimbrell. "We know after all, that you can't mate a flounder with a tomato. It's laboratory created." Kimbrell is referring to the famous "flavr savr" tomato, the plant that became home in the 1990's to a flounder gene encoded with the protein that offers cold resistance to the fish. This, in order to create a tomato that could withstand the rigors of cold storage temperatures.

Although this particular experiment was a failure, other forays into genetic engineering have become smashing successes over the course of the past decade. Monsanto's ubiquitous bioengineered recombinant Bovine Growth Hormone (rBGH), for example, also known as Bovine

Somatotropin (rBST), is injected into tens of thousands of cows every week to force the cows to produce more milk than they normally could. The increased level of milk production causes the cows to develop a painful disease of the udders, requiring spiraling amounts of antibiotics to quell it. Aside from being problematic for the cows, humans have had to contend with a number of problems with the milk, among them, rising levels of pus, antibiotic residues, and a cancer-accelerating hormone called IGF-1.

Even more pervasive though is the quiet storm that has taken over the humble soy and corn crop. They are among the "top four" Kimbrell refers to, taking their place alongside canola and cotton – four crops that seem to find their way into the majority of packaged foods in our supermarkets. Think high fructose corn syrup in your children's fruit drinks. Canola oil in your salad dressing. Cottonseed oil in baked goods. Breakfast cereals made from corn. Soymilk, soy protein, soy franks - soy anything that's not labeled "organic," "GMO free" or "GE free."

Health effects… or not

While our government claims there is no significant difference between GM and non GM foods, scientists in some other countries see it differently. In 1999, for instance, researcher Dr. Arpad Pusztai fed rats transgenic (GM) potatoes in his lab in Scotland. His GM-fed rats showed evidence of organ damage, thickening of the small intestine and poor brain development, as compared to a group of similar rats fed a conventional diet. Although the prestigious journal The Lancet published Pusztai's data, he was subsequently suspended from his research position at the Rowett Institute in Aberdeen and has since been banned from speaking publicly on the issue.

What's more, there is a dismaying likelihood that bio-engineered good can significantly undermine the effectiveness of existing antibiotics. That's because every crop that is genetically modified is injected with a gene that encodes resistance to antibiotics for tracing purposes. While the FDA appears nonchalant about the hazard, the British Medical Association states: "There should be a ban on the use of antibiotic resistance marker genes… as the risk to human health from antibiotic resistance developing in microorganisms is one of the major public health threats that will be faced in the 21st Century." Other perils cited by experts include a weakened immune response and a loss of nutrients.

And, while it's true we have no organized trials on humans, we do know from author Jeffrey M. Smith (Seeds of Deception, 2003) that geese, cows, deer, raccoons and even mice will shun the stuff, given any alternative. Equally troubling is the fact that current GM foods "borrow" their new genes from bacteria, viruses, and other organisms. Since these proteins were never part of the human food supply, one can only guess as to their potential to cause mild or severe food allergies. And guessing it will be. Since the USDA does not allow labeling of GM ingredients in our everyday foods, there's effectively no way of tracking their health effects.

This may help keep the number of lawsuits Monsanto needs to contend with to a minimum, but I have trouble seeing the benefit to consumers.

Herbicide Heaven

While GE advocates tout the benefits of using fewer pesticides on crops, this benefit has not panned out, at least not in the U.S. As Kimbrell explains: "Currently four out of every five acres of genetically engineered crops in the U.S. and around the world are engineered to be herbicide-tolerant. Foreign genes help these crops tolerate ever-increasing amounts of herbicide application."

Why would farmers want to spray *more* herbicide on their crops instead of *less*? By necessity, in part. After years of uninterrupted spraying, weeds have become resistant to popular herbicides such as Roundup Ready. Spraying ever-increasing amounts of herbicide, however, kills the crop along with the weed. By engineering plants that can withstand massive doses of herbicide, farmers get to kill the weeds, but save the crops. It's a vicious cycle.

Tragically, a 2005 study by David Bohan et al indicated that continual herbicide application on these transgenic crops could decrease wildlife including birds, bees, and butterflies by as much as 30%. Apparently Monsanto's gain is nature's loss – and your family's, as those powerful pesticide residues find their way into every ounce of GMO-containing food you consume.

Non GM crops beware

What happens when a genetically modified seed blows over the fence from one farmer's yard to another? The nightmare scenario Kimbrell points to is called "biological pollution." Unlike chemical pollution, biological pollution is forever.

Most GMO crops are injected not only with genes that will give them desired characteristics such as pesticide resistance, but with what's known in the business as a "terminator" or "suicide" gene. In this way, a farmer can't save his seeds and replant them the following year. He'll have to buy them from Monsanto year in and year out. "We have seen these genes jumping," notes Kimbrell. "What would happen if one of these "suicide" genes jumps into the conventional or organic crops of the world"?

The rest of the world's crops would commit suicide as well.

If you're curious about all this, check out www.centerforfoodsafety.org, or "Your Right to Know", Kimbrell's new book. "Each action we take in deciding which foods to buy, grow, or eat creates a very different future for ourselves and the earth", says the epilogue.

I couldn't have said it better myself.

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