

Genetically Modified Outcome

Drifting Pollen May Settle Debate Over Transgenic Food

by Karen Charman

Just as Americans are becoming aware that much of the food on supermarket shelves is spliced with genes from foreign species, debate about whether our food should be manipulated in this manner is on its way to becoming a moot point.

The reason, as crudely put to me by a U.S. Department of Agriculture staffer more than five years ago, is this: "plants have sex."

Corn wantonly tosses its gene-laden pollen to the wind in search of nearby mates. Soybeans and canola are somewhat more sexually bashful --they depend on insects to spread their pollen. All this is nature's way of distributing genes and ensuring reproduction. We humans are powerless to limit such a primal and eternal process.

Humankind has, however, learned to change the genetic makeup of crops in ways that nature never would. Genetically modified ("GM" or "transgenic") strains of just four crops already account for nearly a third of the farm acreage under cultivation in this country. A multitude of other transgenic varieties not yet commercialized are also being grown in field trials in the open environment.

The problem is that the natural process of plant sex is taking over, spreading manipulated genes everywhere, beyond test plots, beyond the fields of farmers who have chosen to plant them. If we decide for whatever reason that GM crops are undesirable or discover that certain, or perhaps all, transgenic foods are dangerous, we will be stuck with them.

Consumers have a choice, right? If they don't like GM foods, they can buy food that meets strict organic food standards, which do not permit genetic engineering. But Janet Jacobson, a North Dakota organic farmer and president of the Northern Plains Sustainable Agriculture Society, says that after just six years of commercial production of gene-spliced crops, organic food's non-GM safe haven is rapidly disappearing.

"Organic producers can no longer produce organic corn. I don't know any organic farmers that can grow canola, because there's so much GM canola around," she laments. "There are also organic farmers who have had soybeans rejected because they were contaminated with GMOs."

Besides drifting pollen, some of the genetic contamination has resulted from GM seeds getting mixed into the conventional seed stocks that farmers use to plant their next year's crops.

Many biotech food opponents have suspected for some time that genetic pollution is a deliberate strategy of the biotech industry and its minions in state and federal government.

In January 2001, Don Westfall, a food industry consultant formerly with Promar International, an American company that advises large food corporations on industry

trends and marketing strategies, told the Toronto Star exactly that: "The hope of the industry is that over time the market is so flooded that there's nothing you can do about it. You just sort of surrender."

Westfall's remarks were made in the context of an interview about genetic contamination of the food supply in light of the StarLink debacle. In the fall of 2000, StarLink, a transgenic variety of corn that was not approved for human consumption, was discovered in Taco Bell taco shells and eventually hundreds of other foods that contain corn. More than 300 products were recalled from supermarket shelves, export markets were lost, and hundreds of farmers got stuck with their contaminated crop, leading to a quagmire of litigation that will take years to settle and may well cost a billion dollars before it's over.

In April 2002, Dale Adolphe, former head of the Canola Council of Canada and current executive director of the Canadian Seed Growers Association, told Canadian canola growers at their annual meeting that despite growing public opposition and new regulations intended to control GM crops, their increasing acreage may eventually end the debate.

The Western Producer, a Canadian agricultural paper, quoted Adolphe: "It's a hell of a thing to say that the way we win is don't give the consumer a choice, but that might be it."

If these views don't represent industry strategy, they might as well, considering that new biotech varieties continue their silent march out into the open environment with, in most cases, virtually no prior environmental assessment or monitoring once they are released.

Why should we care?

Biotech promoters like to say that opponents and critics rely on raw, scientifically unsubstantiated emotion to whip the public into a frenzy of fear. (Actually, some of the most emotional outbursts I've personally witnessed came from biotech supporters, whether it be Iowa Governor Tom Vilsack railing against the use of the precautionary principle, or the Hudson Institute's Dennis Avery thundering to a largely pro-biotech crowd that GM food is on its way out because the activists -- "organic frenzies" -- have won.)

However, a growing chorus of scientists is starting to question the wisdom and safety of this technology.

Biotech supporters claim that GM food is no different than food derived from conventional breeding techniques and that the technology of genetic engineering simply enables scientists to improve crops more quickly and with greater precision. Credible scientists question both claims.

Biotechnologists have no control over where the genes they are inserting end up in the modified species' genome, leading one geneticist to dub the technology "genetic randomeering." The location is important, because where the gene ends up -- actually it's a package of several genes, because several different genes are needed to make the technology work -- will determine whether toxic byproducts or allergens are created, or whether the nutritional value of the modified food is altered. The placement of foreign genes can also disrupt the normal functioning of the modified organism.

David Schubert, a cell biologist at The Salk Institute for Biological Studies in San Diego,

says there is no way to predict these outcomes in advance. He points to one particularly tragic incident to illustrate what can go wrong with genetic engineering. In the late 1980s, Showa Denko, a Japanese chemical company, began producing the amino acid L-tryptophan with genetically engineered bacteria. Unfortunately the modified bacteria also produced a novel amino acid that turned out to be highly toxic, killing 37 people, permanently disabling 1,500 and making more than 5,000 sick.

Now GM plants that produce pharmaceutical and industrial compounds are spicing up the mix. According to the USDA's Animal Plant Health Inspection Service (APHIS), the government agency with chief responsibility for regulating field trials of bioengineered crops, 30 sites totaling some 100 acres are now testing such crops in the open environment. But it is impossible to find out where or what is being tested, because the identity of the compounds is considered "confidential business information."

Todd Leake, a conventional wheat farmer from the Red River Valley in North Dakota who opposes GM crops, says corn and soybeans that produce veterinary vaccines or contain antibiotics have already been field tested. If they proceed to commercial production, he believes contamination will be impossible to prevent.

"So your kids will be eating, say, gastroenteritis vaccine with their cornflakes and cattle antibiotics in their bread," he said. Leake might have added that also applies to the rest of us.

Transgenic agriculture turns food into intellectual property, giving profit-driven business corporations the ability to manipulate the entire genetic heritage of civilization's cultivated crops to their advantage. Do we really want to give any corporation such power over us?

That's a question members of a democracy might like to debate while there is still a chance to influence the outcome of such an unprecedented experiment. But as long as the secret research trials continue and biotech acreage expands, our ability to make a choice -- whether it is based on informed debate or not -- diminishes by the day.

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