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Frankenfoods Upon Us

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Genetically modified organisms (GMOs), genetically engineered (GE) foods and crops, biotech foods and crops, transgenic foods, "Frankenfoods" - these are all synonyms for the same thing: an unprecedented new technology that inserts genetic material from one organism into another. GE foods are here, their affects largely unknown and unexplored, and they are being foisted upon a predominantly unsuspecting public by large corporations. The Europeans, Japanese and Australians aren't having any of it. Here in the United States, however, GE foods are already a large chunk of our diets (if we are not eating organically), and the scary part is that the purveyors of these products don't want us to know we're eating them. Not since the great debate on nuclear power at the end of the 1970s has such a potentially devastating technology been introduced.

The proponents of biotech foods and crops claim that they are safe, will produce more food at less cost, and will help the environment. I will attempt to show that the case for GMOs is just the opposite.

What exactly is this new technology? Basically, molecular biologists take a portion of DNA from a donor species and, using a vector such as a bacteria, "insert" the foreign DNA into a target species. EPA toxicologist Suzanne Wuerthele stated, "It's the biological equivalent of splitting the atom."

While scientists can be fairly precise about excising the DNA they want from the donor, they cannot control the insertion of the foreign DNA into the target organism. The authors of *Genetically Engineered Food: A Self-Defense Guide for Consumers* put it like this: "In other words, they are firing the gene gun with little idea where the payload of desired traits will crash through the cell walls of the host organism and begin to disrupt its complex biochemical matrix. This random shotgun-like insertion inevitably causes a disruption of the order and balance of the genes on the host chromosome and can readily result in random and unexpected changes in the biochemical functioning of the cells."

This imprecision, much like "smart" bombs, causes collateral damage. The damage in this case is the unpredictable disruption in the biochemical functioning of the host cell. In one case, a yeast that was genetically altered became a toxic chemical factory. An accidental disruption in its metabolism led to a 40- to 200-fold increase in the production of methylglyoxal (MG), a toxic substance. The variation (40-200 fold) and the toxicity point to the unpredictable and potentially harmful results of this technology.

GE is not just a continuation of what traditional plant and animal breeders have been doing for centuries, as some proponents argue. Traditional crop breeding does not fundamentally alter or manipulate the genetic material of the organism. In nature, one species cannot reproduce with another species. Humans mate with humans, pigs with pigs, fish with fish and corn with corn; not tomatoes with lizards, spiders with squash, or hyenas with figs. GE goes beyond the natural barriers of propagation. To break through this previously unbreached border may release a Pandora's box of unintended consequences.

Among the major downsides to genetically modified and engineered products:

- Genetic engineering of food is a wholly unprecedented and unpredictable new technology.
- GE foods are not adequately tested for their safety to our health or to the environment.
- GMOs are already in the environment and are not being tracked.
- GMOs have damaging social and economic effects on family farmers and rural communities.
- Evidence is mounting which indicates that this new technology presents serious hazards for our health and environment, which in many instances are irreversible.
- Cross-pollination, in which other species in the wild receive the new DNA unintentionally.

It's Everywhere!

According to data from the U.S. Department of Agriculture from 1999 (which can be assumed to much worse now), GE crops account for 57 percent of the U.S. soybean crop; 38 percent of the U.S. corn crop; 65 percent of the U.S. cotton crop; and 4 percent of the U.S. potato crop. In addition, over 50 percent of the U.S. and Canadian canola crops are genetically modified, and over 500,000 cattle in the U.S. have been injected with recombinant bovine growth hormone (rBGH or RBST), which has been banned in Europe, Canada, and every other industrialized nation, except the U.S.

The British Medical Association has called for a moratorium on all GE foods because of the question of safety. In 1999, 231 scientists from 31 countries published an "open letter to all governments," calling for a worldwide moratorium on all GE foods and crops. Specifically, the possibility of horizontal gene transfer has the potential to create new pathogenic viruses.

This past fall, in Hawaii, it was discovered that non-GE papaya seeds, some of them organic, were found to be contaminated from GE papayas. Also this past fall, scientists in Oregon found pollen from Monsanto's GE herbicide-tolerant bentgrass had cross-pollinated with natural bentgrass 13 miles away. Monsanto created "Roundup Ready" bentgrass for golf courses and private lawns. Throughout North America, cross-contamination is being discovered in organic, wild and non-GE plants by GE corn, canola, cotton and soybean. Dumping of GE corn by the U.S. on Mexico is causing widespread contamination of the indigenous maize varieties. Widespread contamination of organic crops in Canada has lead Canadian farmers to sue Monsanto and Aventis (Bayer). In China, it was discovered that over a million GE trees were planted in the open environment, with no plan to monitor the impact on the ecosystem. The most well-known example of GMOs run amok: monarch butterfly larvae that were killed by GE corn pollen.

There is no "paper trail." There is no labeling, so consumers don't know what they are eating. The corporations that have invested billions of dollars in this technology have lobbied Congress and the executive branch successfully to hide their product in our food.

Uniformed Consent

When faced with a new and potentially harmful technology or product, we must invoke the "precautionary principle," which assumes guilt until proven innocent. What to do? Contact organizations that are at the forefront of this issue, and advocate for moratoriums and labeling until the time that this technology can be shown to be worth our while.

Contacts

- Organic Consumers Association (www.organicconsumers.org)
- Union of Concerned Scientists (www.ucsusa.org)
- Center for Food Safety (www.centerforfoodsafety.org)