

Genetically Engineered Foods
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Genetically Engineered (GE), Genetically Modified Organisms (GMO), Transgenic

These are all terms that relate to a wide range of agricultural, industrial and medical products in which genes have been altered using recombinant DNA technology. It is genetic surgery, allowing genetic engineers to splice DNA via enzymes to remove genes. Once the gene is removed from an organism scientists inject it into another organism to which they wish to transfer a particular trait. Marker genes are used to determine if the transfer of genes actually occurred. Antibiotics are the markers of choice.

While the removal of a gene from one organism is very concise, injection of the gene into another organism is haphazard at best, similar to doing brain surgery with a shovel. There are four types of genetic products,

- Herbicide-tolerant crops
- Insect-resistant crops
- Virus-resistant crops
- Terminator seeds.

Herbicide-tolerant.

These crops are engineered to resist strong doses with increased tolerance to herbicides.

Herbicide-tolerant plants enable farmers to spray larger doses of herbicide on the plants without killing them. The companies who are creating these seeds/crops are programming the seeds to tolerate only the herbicide, which they manufacture. For example Monsanto has developed a Round-up Ready soybean. The soybean plant has a gene that switches on when sprayed with Round up.

Farmers are persuaded to buy their seeds from specific biotech companies and are then locked in to purchasing their herbicide from them. A farmer must sign a contract with the biotech company guaranteeing that he will purchase seeds and herbicides exclusively from that company. If the farmer breaches that contract he may be taken to court, there are a number of such cases in the courts already.

This technology encourages further dependency on toxic chemicals and additionally places control of the world's food production in the hands of transnational corporate giants.

Insect-resistant.

These crops actually contain their own pesticides within their genetic structure. There are currently two vegetables, a potato and a corn variety that are listed with the EPA as pesticides rather than vegetables.

Bacillus Thuringensis or BT is a natural soil microorganism, which has been used for over twenty years by organic farmers to control insect pests. Organic farmers use it with select applications when needed; it is the only natural, safe pesticide in use. The biotech industry has taken the BT organism, spliced out the genes that create the toxins, enhanced them and injected them into plants. This has resulted in a pesticide that cannot be washed off and whose dose cannot be controlled. The pesticide is inherent in the structure of the plant constantly releasing toxin even during harvest. This technology has the potential of destroying the only safe pesticide organic farmers have by accelerating the evolution of resistance to BT

Virus-resistant.

These plants contain virus genes. The plant produces a protein that enables it to resist the virus when it attacks the plant, similar to vaccinations in children, However, viral fragments may enter the blood stream of humans and other animals attaching to cellular DNA in the gut.

Terminator seeds.

Gene Use Restriction Technology or GURT, better known as terminator technology virtually programs seeds to self-destruct. The seeds are designed to produce a deadly toxin late in the life cycle of the plant, or they may require a chemical be sprayed on them to reactivate the seed. This technology again necessitates the purchase of chemical and seeds each year from the biotech giants.

Terminator technology has been developed by the biotech corporations co-funded by the USDA who jointly owns a patent on this technology with Monsanto.

Terminator technology has no benefits to farmers. The needs of less developed countries that require cheap labor intense farming that creates employment are ignored. The only benefit of this technology is to the developers. They insist that the seeds must terminate so farmers return to purchase them in order for developers to continue to do R&D.

Who's doing it?

There is a powerful group of life corporations that are forming around the world, with the merging of pharmaceutical, seed and biotech companies. They are forming transnational enterprises whose aim is to control the world's food supplies by holding patents on seeds and life forms.

The major players are:

1. Monsanto
2. U.S. Government
3. Dupont
4. Dow
5. Bayer

6. Imperial Chemical Industries
7. Hoechst
8. Rhone Polenc
9. Novartes

The scientists that are actually doing the research are hired out of school into corporations or universities that are often funded by corporations that have an agenda. They have their heads bent to the task at hand and are often looking for a result that supports the corporate agenda. Innovative scientific freedom is a luxury of the past.

Claims by Biotech Companies

Among the many claims the biotech companies are making regarding GE technology is that it is the same as traditional crossbreeding, which has been going on generations.

GE techniques are very different than traditional crossbreeding techniques because they have been designed to be different. Crossbreeding uses natural reproductive mechanisms. It follows the natural laws of nature. There are distinct boundaries that can not be breached. Genetic material can only pass from the same species or closely related species vertically along the chain. An isolated gene cannot be dropped into the mix; the entire DNA strand must be incorporated.

GE does not follow the natural constraints put in place by nature- it crosses all natural boundaries and unrelated species. An isolated gene can be crossed with any other conceivable organism, running the risk of creating genetic soup, compromising the natural biodiversity of nature.

The biotechnology companies are making additional claims to support the forward growth of their industry; among them is the ability to feed the world. We already have the ability to feed the hungry of the world. It is not that we do not have enough food, we pay our farmers not to plant, there is not enough money in third world countries to pay for it. Greed keeps the world hungry.

These third world countries need work for their people, a more labor intense farming program not less. If they were taught a self-sustaining farm system they would not be forced to be dependent on biotech companies to supply chemicals and terminator seeds. In addition there are valid concerns that GE crops with poor regulation in poor countries may significantly lower food safety and environmental standards in unindustrialized countries. Pesticides not allowed in this country are still being developed by US companies and shipped to undeveloped countries with little or no explanation of the risks. There are broad claims that GE crops will reduce the use of both herbicides and pesticides while producing higher yields. In recent studies this has not proven to be the case.

Regulation

There are three governing bodies in the US concerned with the regulation of GE foods. The USDA oversees CYE crops under the federal plant and pest act. They evaluate the potential impact of GE crops on US agriculture and the environment. The EPA has the authority to regulate only those products that produce their own pesticide. The FDA is more general and comes under a post-market authority. The FDA will step in and recall a food if after it has been on the market it can be proven to have caused a problem or pose a risk. The FDA has taken the position that GF foods are 'Substantially Equivalent' to conventionally grown foods.

The very companies that aim to profit from these technologies are on an honor system. The FDA assumes that these companies will be completely open and honest, ethical and impartial in assessing and determining the safety of their products not being swayed by the bottom line. These are the same companies that claimed that Roundup herbicide was environmentally safe until it was discovered that it is the third cause of chemical illness among farm workers and were forced to withdraw this claim. The same companies when told they could no longer use a particular pesticide in the US sold it to Costa Rica for banana plantations. The same companies that still claim that silicon breast implants are safe. Alone, unregulated these companies are left to voluntarily determine if GE crops are safe.

The revolving door between the FDA and the biotech multinational giants is widely known. When the government accounting office investigated this relationship it was found that the FDA was approving GE, foods, ignoring some of their own scientists warning against it.

The CEO of Monsanto sits on the Presidents Advisory Committee for Trade Policy and Negotiations and served a term as a member of the White House Domestic Policy Review Board. In addition a Monsanto attorney became deputy FDA commissioner and returned to work for Monsanto when his term was served.

When the US government holds a patent on terminator technology using tax dollars to fund the research and is strong-arming other countries to accept this untested technology it appears there is a conflict of interest. Who is watching out for the consumer?

Labeling

The FDA until recently has backed the biotech companies by supporting no labeling of GE food and denying the consumer the right to choose. January 31, 2000 an article on the front page of the LA Times and the NY Times suggests that position has softened under pressure from anti GE activist groups. Labeling may now be in our future.

There have been no long-term studies done to determine the safety of GE foods to humans or the long-term effect to the ecosystem. We are the guinea pigs in a global experiment. If it fails there will be no one to hold accountable because it will be difficult to trace to a source. Over 70 % of the food in the US already contains GE organisms, most manufactures of foods do not know if their products contain GE ingredients.

World Response.

The introduction of GE crops into the environment and the food chain is highly controversial. The UK, European Union, Japan and Australia have all expressed grave concern over GE crops. Prince Charles has his own web site expressing his concerns over GE technology. In September the Council of Canadians called for the countries food retailers and producers to give Canadians the same environmental protection as the Europeans have.

Americans have been given very little information on GE foods. That which comes over the mass media touts glowing acclaims of the benefits of this technology. Little is heard of the global decent.

Investors Business Daily, January 1, 2000 Frito Lay stated that they would no longer be using GE corn in their products. Last year Gerber burkled under the pressure of protestors and said it would discontinue the use of GE foods in its baby food. The world is becorr6ng aware and taking a stand.

Hazards and Risks.

There are novel proteins entering our diets from bacteria, viruses and non-food species producing allergens, which will be difficult to identify. The York Nutritional Lab, Europe's leading specialist on food sensitivity, revealed a 50% increase in soy allergenisty during the past year when the percent of GE beans in the total soy market jumped dramatically.

New research conducted by the USDA demonstrated that biotech crops do not produce higher yields as they have claimed or result in reduced pesticide use. Farmers using Roundup pesticide on soybeans used 2-5 times more.

The use of antibiotic markets is adding to the already burgeoning overuse of antibiotics, encouraging antibiotic resistance.

Most important there is natural law that for eons has out classed man. It is in this century alone that mans ego has swollen to the point that he is ready to take on nature. Instead of embracing the natural law there is a push to dominate it.

Breaking nature into her constituent parts does little to shine light into the depths of her mystery. The whole is greater than the sum of its parts. Ge technology is a manipulation of the infrastructure of life, the most frightening experiment to date.

While it may be true that amazing medical and global advancement may be the reward of this technology, the risks may be too great. Once a mutated gene is released into the environment it cannot be recalled. Careful, controlled studies must be conducted before any release into the environment should be considered. We all remember the foible of nuclear energy; it was going to supply the world with energy, at what price?

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ACA COUNCIL ON NUTRITION

POSITION STATEMENT

In light of the global controversy surrounding the development of genetically altered crops/foods, as well as research findings that raise questions about their impact on the environment and the health of humans ingesting them, the Council adopts the position favored by many leading scientists: that extensive unbiased study, under controlled conditions be conducted on Genetically Engineered crops/foods before they are introduced into the environment and the food supply.

In addition, we recommend that regulators require labeling of products containing transgenes. The Council supports the consumer's freedom to choose. We further recommend that chiropractors advise their patients to avoid Genetically Engineered foods when ever possible until such time that genetically modified crops/foods are determined to be safe.