

Concern grows over genetically modified food

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In January this year, a researcher at the Rowett Research Institute in Scotland said of genetically modified food, 'If left to me, I would certainly not eat it. We are putting new things into food which would have not been eaten before. The effects on the immune system are not easily predictable and I challenge anyone who will say that the effects are predictable.'

On the basis of his recent research, the scientist concerned, Dr. Arpad Pusztai, repeated the warnings on the TV program *World In Action* on August 10. The next day, the director of the Rowett Research Institute ordered an investigation. Within days the director announced that he had impounded Dr. Pusztai's data and Dr. Pusztai was going to retire.

Dr. Pusztai is a world authority in plant chemicals research and has worked for 35 years at the institute, publishing 270 scientific papers. He strongly believes in the benefits that genetic modification can bring to humanity, but says biotechnology companies are introducing the new technology too quickly and with insufficient research.

Scientists first discovered the technique of genetic modification in the 1970s. It has great potential and is moving ahead very rapidly. Robb Fraley, co-president at Monsanto, one of the biggest biotechnology companies, said, 'We are at the beginning of an industry transformation that in a few years will be looked at as greater than the computer revolution.' Two years ago modified soya comprised just 2 percent of the US soya market. By the year 2000 it will reach 80 percent.

The development of genetics and similar technologies has revolutionised mankind's understanding of the structure of the gene. The cost of unravelling this structure today is just \$150 compared to \$2.5 million in the mid 1970s. As a result, researchers have established the genetic map of many organisms and can transfer genetic material from one organism to another relatively easily.

It is now possible to breed, virtually overnight, plants and animals with improved nutritional and health benefits to humans. This compares to the thousands of years it has taken to breed the familiar varieties we see today. Scientists can insert genes from one organism into another to produce, for example, extra vitamins, less fat and substances that are in short supply or difficult to manufacture. Genetically modified bacteria producing chymosin have largely replaced calves, whose stomach was the only source of rennet for cheese making.

Biotechnology companies have rushed to produce characteristics such as resistance to drought, disease and insects in food crops that previously did not have them. Many new crops require less processing in the factories and fewer additives. Because they have genes that make them last longer, there is less wastage. Zeneca has developed a slow softening tomato that manufacturers use in tomato puree, Britain's first commercially available modified food.

Another possible benefit is the reduced use of pesticides, fertilisers

and energy compared to conventional farming methods. Farmers do not need to till the soil, lessening soil erosion and reducing labour and machinery. Monsanto claims its potato that is resistant to the Colorado beetle could save 2,000 tons of pesticides, 180,000 containers and 150,000 gallons of fuel.

Biotechnology is big business and enormous potential profits are at stake. The global crop protection market alone is worth \$20 billion. Companies like Monsanto, Dupont and Novartis spend billions on the research and production of genetically modified food. The Rowett Research Institute, like many scientific establishments, has become increasingly dependent on the financial support of these companies because of government cuts. Monsanto has just spent \$3.2 billion acquiring two companies, and forming a joint venture with a third, that have research, seed production and processing capabilities. It has also spent \$6.5 billion buying up seed businesses, recently acquiring Cargill's international seed operation. By the end of the century four to five companies will dominate global seed supplies.

The development of global planning and production of food could be the means to eradicate poverty and hunger, but it will not happen if left in the hands of the biotechnology companies. The intense competition for markets and to realise a profit on investments undermines the possibility of planning in a co-operative and systematic way. Monsanto's shareholders have seen a four-fold increase in their shares since 1994, but were unhappy recently when the company reported profits of only £294 million dollars on sales of £7.5 billion. These pressures have meant the companies are now demanding the removal of restrictions on their world-wide right to exploit the new technology and beat their rivals.

The demands for deregulation have greatly increased concerns about the safety of genetically modified food. When scientists move genes between organisms of the same species and between different species, entirely new problems are posed. As Dr. Pusztai points out, it is difficult to predict how the introduced genes will interact with existing ones, or what the possible side effects on humans or the environment will be. Testing on laboratory rats may not reveal possible effects on humans or other species.

The biotechnology companies admit there are dangers, but say research is thorough and the industry well regulated. However, things have gone wrong. Salmon that grow twice as fast as normal have escaped into the wild and one company had to withdraw some oil-seed rape seeds because they contained the 'wrong' gene. There are concerns that genes resistant to pesticide and antibiotics could spread. Recent research has shown that a new type of herbicide-resistant oil-seed rape can cross breed with a related wild weed, making it resistant.

Besides the safety problems, the effects on agricultural practices have been enormous as the biotechnology companies reach into every corner of the world. In India farmers have grown certain varieties of

rice for thousands of years, but companies have patented many of these strains and put them beyond the budgets of small farmers. Other farmers find themselves increasingly tied to the biotechnology companies. When they buy Monsanto's modified soya beans, for example, they have to spray with Monsanto's Roundup herbicide that kills all other plants. Only Monsanto's seeds and beans survive because they contain a gene that makes them resistant to the herbicide. Farmers must sign contracts that say they must not sow the seeds or beans produced by their crop the following year, and companies are developing 'terminator technology' to prevent new seeds germinating.

In the 1980s the seed producers said the introduction of high yielding hybrid crops in the 'Green Revolution' would end hunger and help poor farmers. Instead, the result has been the increased development of huge agribusinesses in the West 'overproducing' and creating 'food mountains' whilst millions starve in the Third World. Small farmers in both areas are ruined. It is cheaper for small farmers in Mexico to buy North American maize in their local markets than it is to grow their own. The development of genetically modified crops will exacerbate this development.

In the struggle to dominate the market, the biotechnology companies do not look kindly on opposition to their plans and they have some very powerful allies. Fourteen US states have made it illegal to spread 'falsely and damaging information about food'. Two journalists are suing Fox TV who fired them after they refused to broadcast a program about Monsanto's modified cattle growth hormone. Jane Akre, one of the journalists, explained how they wanted to tell 'the truth about a giant chemical company and a powerful dairy lobby. That used to be something investigative reporters won awards for. As we've learned the hard way, it's something you can be fired for these days'.

It appears the action taken against Dr. Pusztai relates to his TV warnings. Soon after his enforced retirement was announced, the printers of the *Ecologist* magazine pulped an edition devoted entirely to Monsanto. A spokesperson for the magazine thought the printer's lawyers might have advised them to destroy the magazine out of fear of being sued.

The World Trade Organization has stopped countries banning modified food or crops, even when there have been referenda or mass protests and petitions. The US government has threatened trade war measures against Europe over import restrictions. Many European governments have retaliated by delaying the planting of modified crops, but European biotechnology companies believe this plays into the hands of US and Japanese companies which will dominate the market as a result. One spokesperson said, 'regulation must enhance commercial operability and competitiveness.' In Britain, the Agriculture Ministry said British companies could be 'seriously disadvantaged if competitors had better access to this new technology.'

The British Labour government has come under renewed pressure from President Clinton to support the growing of modified crops. Clinton gave Monsanto special mention in his State of the Nation speech last year. The company has donated thousands of dollars in 'soft money'--legal funds that are not included in corporate donations--to the Democrats and is spearheading Clinton's welfare to work program, according to the *Guardian* newspaper.

The leading advisory body to the British government, the Advisory Committee on Releases to the Environment, has 8 of its 13 members linked to the biotechnology industry. Six have involvement with companies that the government has authorised to conduct experimental releases at over 200 sites.

Last year, the Food Safety Minister, Jeff Rooker and Public Health Minister, Tessa Jowell, opened an exhibition about modified food in London's Science Museum. Jowell declared, 'genetically modified foods are only approved for sale if governments across Europe are satisfied they are safe.' However, this year an organic farmer, Guy Watson took legal action to stop field trials of modified seeds next to his farm. It was revealed that in 1993 the Agriculture Ministry stopped laboratory tests legally required before field trials could start. The ministry also stopped notifying businesses and farmers near to the trials in 1995. Rooker admitted, 'We cannot find any paperwork from 1992-93 when the decision was made'.

English Nature, a government-funded organisation concerned with wildlife and nature, called for a five-year moratorium on the commercial planting of modified crops. On October 22, Prime Minister Tony Blair announced that he has set up a cabinet committee to oversee their development. Earlier in the month, the government announced a three-year ban on the use of crops modified to be insect resistant. Environmental organisations have pointed out that no companies intended to grow them anyway.

The new biotechnology offers enormous opportunities. Those like Prince Charles, who says it 'takes mankind into the realms that belong to God and to God alone', would prevent scientific research that could potentially benefit millions. The physicist Stephen Hawking, who suffers from motor neurone disease, expressed a more enlightened view earlier this year. Speaking at a White House lecture, Hawking raised the possibility that human beings will completely redesign themselves in the next one thousand years. The redesigning of animals and plants is just the first step on the way.

The most important consideration is who controls and directs the new technology, and what is the driving force for its development. Socialists do not call for a return to a pre-industrial age but the democratic, planned and rational control of science and technology to solve mankind's problems. The profit interests of a handful of corporations must not be allowed to determine what is researched and developed. The action against Dr. Pusztai raises serious doubts whether scientists will be free to carry out the type of independent research needed to show that modified crops are safe. The Rowett Institute should publish his research so that it can be subjected to independent scientific and public scrutiny.



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