

Myths about Genetically Engineered Food

Myth No. 1

Genetic engineering (GE) is not new. It is just the same as selective breeding.

FACT: Genetic engineering (GE) and conventional breeding are worlds apart. Breeding does not manipulate genes, it involves crossing of selected parents of the same or closely related species. In contrast, GE involves extracting selected genes from one organism (eg. animals, plants, insects, bacteria and/or viruses) and artificially inserting them into another completely different organism (eg. food crops). GE usually employs virus genes to smuggle in and promote the inserted genes, and antibiotic resistance genes to act as markers. All these inserted genes are present in every cell of the plant.

Myth No. 2

Genetic engineering is precise.

FACT: The function of only a small proportion of the DNA in an organism is known. Modern genetics has shown that genes do not operate in isolation. Rather they interact in a complicated way, changing their behaviour in response to influences from other genes.

Although a gene can be cut out precisely from the DNA of an organism, its insertion into the DNA of another organism is entirely random. This results in the disruption of the order of the genes on the chromosome and may result in random and unexpected changes in the functioning of the cells.

Richard Lewontin, Professor of Genetics at Harvard University has said of GE:

"We have such a miserably poor understanding of how the organism develops from its DNA that I would be surprised if we don't get one rude shock after another."

Myth No. 3

GE foods vary from non-GE foods only in the characteristic that has been modified.

FACT: The random insertion of foreign genes into the genetic material may cause unexpected changes in the functioning of other genes. Existing molecules may be manufactured in incorrect quantities, at the wrong times, or new molecules may be produced. GE foods and food products may therefore contain unexpected toxins or allergenic molecules that could harm our health or that of our offspring.

Myth No.4

GE food is extensively tested and the GE food at present on our supermarket shelves is perfectly safe to eat.

FACT: No GE food testing is done in New Zealand. We rely on the assessments carried out by Food Standards Australia New Zealand (FSANZ), based largely on data supplied by biotechnology companies that have spent billions of dollars developing the food and intend to make a profit selling it to us. There are serious doubts about the adequacy of the

testing and the validity of the conclusions drawn from the results. Independent long-term testing is required before we can be sure that GE food is safe to eat.

Another major health concern is the possible acceleration of the development of bacterial resistance to antibiotics due to the use of antibiotic resistance genes in the production of GE foods.

Myth No. 5

Genetically engineered food has improved nutritional value.

FACT: Virtually no GE food marketed to date has been shown to be more nutritious than non-GE food. Most GE crops are only designed to be resistant to specific herbicides, to produce their own insecticides or to have an increased shelf life.

Myth No.6

One can always choose not to eat GE food.

FACT: Foods on New Zealand supermarket shelves containing less than 1% GE material are exempt from labelling, as are DNA-free products of GE crops (like oils), GE flavourings, colourings, processing aids and foods (like supermarket bread and restaurant foods) prepared "on the premises". GE products may be found in foods containing the following ingredients:

Soya flour and oil (often in "vegetable oil" & many common foods including breads, sausages, etc.)

Lecithin (in chocolate, ice cream etc.)

Canola oil

Corn (maize)

Myth No.7

GE crops will reduce the use of chemicals in agriculture

FACT: Crops engineered to be resistant to specific herbicides may encourage more liberal use of those herbicides. This has been anticipated by one manufacturer, who applied to ANZFA (now FSANZ) to have the allowable residue of the herbicide glyphosate (Roundup®) in foods sold in New Zealand increased by 200 times.

Myth No. 8

There is no evidence that GE crops are harmful to the environment.

FACT: Insects, birds and the wind carry genetically altered pollen and seeds into neighbouring fields and far beyond. Cross-pollination occurs between GE crops and non-GE crops and their wild relatives. In this way resistance to weedkiller, for example, has been transmitted to weeds making them more difficult to control. There is evidence that crops engineered to produce their own insecticide can harm soil organisms and beneficial insects.

Myth No. 9

Farmers will benefit from growing GE crops.

FACT: Seeds of genetically engineered crops are more expensive than those of conventional crops. Farmers in the USA and UK report that yields are generally no better, the crops are less reliable and overall have not improved profitability. Non-GE crops now receive a premium and as more countries reject GE foods, the opportunities to sell GE produce overseas are diminishing. Because of risks associated with GE crops insurance companies in the USA and UK are reluctant to insure them and Europe's largest bank now advises against investing in biotechnology.

Farmers growing GE crops have to sign binding contracts with the biotechnology producers. These commit them to using only the herbicides produced by that company and prohibit them from the traditional practice of saving seed for the next season. Most third world farmers certainly will not benefit.

Myth No. 10

You can trust the scientists that GE food is good for you and the world.

FACT: The money for scientific research on GE here and overseas comes from either the biotechnology companies or the government. Both are committed to the promises of biotechnology. This means that even when scientists have concerns about the safety or commercial application of the technology, it is often hard for them to risk their careers by being openly critical. One senior scientist in the UK, who spoke up about his experimental results showing the damaging effects of feeding rats on a type of genetically engineered potato, was immediately fired from his job.

Myth No. 11

GE crops will save the world from global famine.

FACT: A major cause of world famine is the unequal global distribution of food. Food mountains exist in much of the western world and food is regularly dumped. Poor people have limited ability to buy either GE or non-GE food.

There is no evidence that GE crops produce higher yields than conventional crops or that GE products will be cheaper. Indeed, studies by US university researchers have shown that many GE crop yields generally 'drag' behind conventional crops.

Myth No. 12

You can't stop progress.

FACT: No, of course we cannot and why would we want to? Progress implies change for the better. Change for the worse is regression. We must be sure that GE products have benefits for the consumer and are safe if they are to be introduced into our foods. We must not commit ourselves to a dubious technology that cannot be reversed.

Myth No. 13

There are more important things to worry about than GE foods.

FACT: Many scientists don't think so. For example Joseph Rotblat, the British physicist who won the 1995 Nobel Prize says:

"My worry is that other advances in science may result in other means of mass destruction, maybe more readily available even than nuclear weapons. Genetic engineering is quite a possible area, because of these dreadful developments that are taking place there."

Prepared by Consumers for Education about Genetic Engineering. Revised Sept 2002.
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