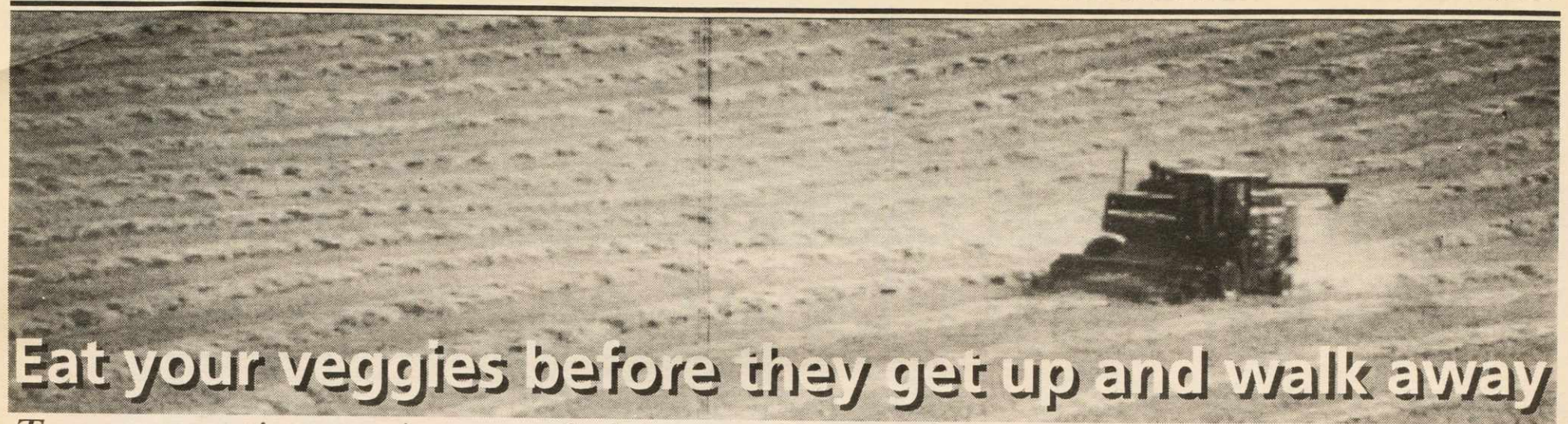


Eat your veggies before they get up and walk away

Trans-genetic matrimony of plants and animals causes concern for scientists

BY GRAHAM SIMMS

Brent and his girlfriend Kelly are at a well known health food store. They buy health food supplements, including a new version of the popular import tryptophan. At the juice bar they each have a freshly-squeezed strawberry-kiwi smoothie and Brent takes two tryptophan tablets.

A few moments later he feels feverish and falls down unconscious. He is rushed to the hospital, paralyzed and in massive toxic-shock.

The prognosis? Doctors tell Brent's family that tryptophan, which is genetically engineered in a Japanese laboratory, caused a mutated form of eosinophilia-myalgia, an auto-immune disease. There is no cure and he will die.

Brent's story is hypothetical but emblematic of 40 North Americans who did in fact die from taking an untested, unlabelled and genetically altered version of the health food supplement tryptophan. In addition, thousands have been permanently crippled, all from this product approved for market by federal health authorities.

Tryptophan is just one of thousands of food products on the market whose DNA has been modified with the genes of viruses, bacteria, plants and animals (including humans). These blended genes are inserted into food products for mass consumption by corporations with little testing, regulations or labels.

Some scientists warn that the misapplication of this technology is causing mutations that are damaging human health and altering the environment in irreversible ways. Other scientists, especially those employed by governments and many multinational corporations, welcome it.

The genes and by-products of these modified crops can cause allergic reactions from migraines and digestive disorders to death.

In Canada, the most common genetically altered foods are canola oil, corn, potatoes, tomatoes and soy bean products.

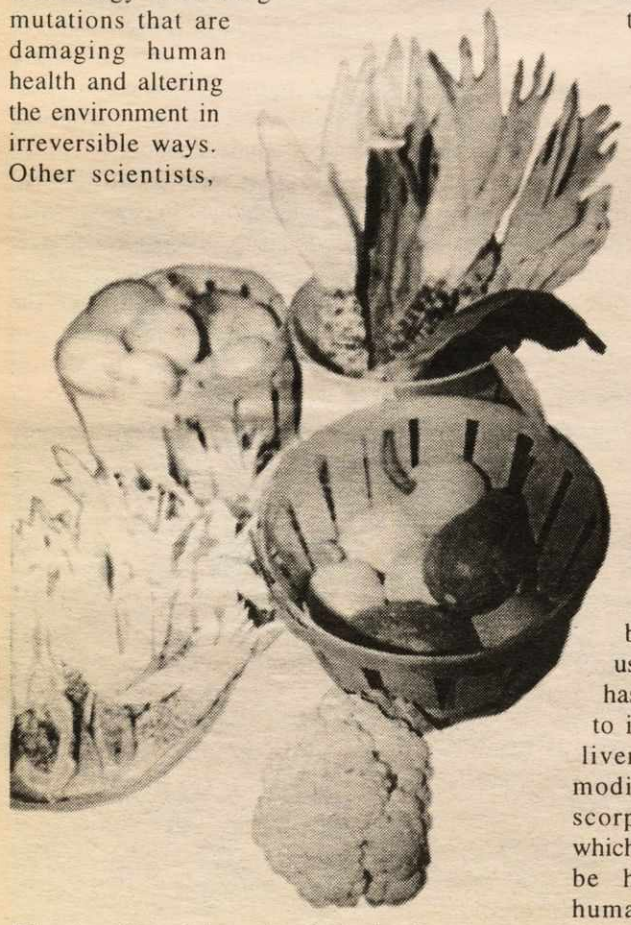
Genetically altered soy is mixed with regular soy and is found in virtually all processed food imported from the USA. At this time, organic food is still the only non-genetically engineered food.

'genetically engineered crops, once released, are totally uncontainable'

Soy crops are altered with insect virus genes to resist herbicides.

Agriculture Canada had been conducting field trials in Southern Ontario where they sprayed lettuce and other vegetables with an insect virus genetically engineered with a toxin gene from the African scorpion. This virus has unexpected traits that have scientists like Dr. Joseph Cummins, professor emeritus of Genetics at the University of Western Ontario, concerned.

"The animal or insect gene in the crop cell environment bears careful testing in the long term," said Dr. Cummins. "Genetic recombination can produce products with untoward consequences and unexpected toxicity. The insect baculovirus used as a spray has been found to infect human liver cells. It is modified with a scorpion toxin which is claimed to be harmless to humans (with minimal testing) but is very likely to cause allergy or auto-immune disease."



The traditional bounty of the land - obsolete?

Pest control toxins can cause several immune system problems for humans.

"Toxic genes from products called lectins are being engineered in crops to control pests," said Dr. Cummins. "A powerful gene promoter called CaMV (Cauliflower Mosaic Virus) from a virus is used so that lectins are present at high levels in all tissues of the crop. Their toxicity to the immune system of humans is well established at such levels. CaMV is closely related to the Hepatitis B virus and HIV. Food genes have been found to be taken up into chromosomes by tissues of the body — including the liver."

Cummins is not optimistic about the future consequences of genetically altered food crops.

"The use of modified crops containing plant viruses will create a major catastrophe within 20 years. Recombinant viruses will alter host range and virulence and because companies flood the agricultural marketplace with the patented crops the impact will be global."

One of scientists' and farmers' biggest fears concerning these crops, that of trans-genetic escape, has been confirmed. Genetically altered plant pollen, carried by wind or bees, will cross-pollinate other plants.

A field study in Germany by the Lower Saxony Ministry of Ecology demonstrated herbicide resistant genes transferred to plants 200 meters away.

Dr. Michael Antoniou, an independent geneticist based in London, fears the implications of such results.

"This is only the latest in a long list of field trials showing that genetically engineered crops, once released, are totally uncontainable," said Antoniou. "They will become a nightmare for conventional farmers to control. For farmers who don't want to grow them, such as the organic sector, these crops will be almost impossible to avoid.

"This means that herbicide resistant super-weeds will rapidly appear and spread. Once weeds have multiple resistance genes, they will be particularly difficult to control. This will result in greater dependence and use of agrochemicals, rather than less, as is claimed by bio-tech companies."

The USA and Canada are among countries that have started to add human DNA genes to plants and farm animals. The USDA engineers human genes into pigs for organ transplants and more efficient meat production. Rabbits have been modified with human genes to produce milk containing human growth hormones.

"Cattle with a human gene to prevent a disease called shipping fever were developed in Calgary," said Dr. Cummins. "Canola oil with a human gene called metalothienen was developed to remedy polluted soil in Canada. That gene is implicated in cancers of the breast and of the male reproductive system. Release of cancer genes into the environment is unwise."

There have already been medical problems from genetically-tinkered products, and they are difficult to trace due to a lack of labelling.

Monsanto, one of the world's largest multinational corporations and a leader in bio-tech, are not only behind the genetic engineering of crops, but they make the genetically engineered growth hormone for cows, BST. There is evidence that suggests drinking milk from BST-treated cows increases breast cancer.

Wolves in sheep's clothing? Even labelling may not tell enough.

In Canada and Europe the Natural Law Party have been fighting bio-tech companies and the government with their campaign to ban genetically altered foods. Buddhist and vegetarian/vegan organizations have publicly denounced genetic engineered food since animal genes may be consumed in vegetables.

Christian, Jewish and Islamic religious groups have also warned about forms of genetic engineering. In June the Vatican called the process "the tragic parody of the power of God [which may] torpedo the balance set by Divine Providence."

A 1994 survey revealed that nearly 90 percent of Canadians were in favour of labelling genetically altered products. Agriculture and Agrifood Canada has dictated that companies must only label if there is "a potential health and safety risk or significant compositional and nutritional change from the traditional food source".

According to Cummins, genetically altered foods are not tested rigorously.

"The failure to test may provide some protection against lawsuits by those maimed or crippled by the foods. Most by-products and allergies are not easily quantified until after the disaster. At best, there will be a small but marketed increase in auto-immune disease and allergy associated with the food. At worse a major outbreak of illness will be observed and will be difficult to trace to the unlabelled foods. If crops are not labelled those who suffer injury will have little chance to identify what is causing their disease."

The United Nations has been meeting to discuss drawing up a protocol on bio-safety, and met in Montreal in August.

At this conference Greenpeace disclosed that Monsanto had conducted secret uncontrolled genetic field tests in the former Soviet Republic of Georgia, where there are no regulations. Local farmer's regular crops were replaced with trans-genetic potatoes. What resulted was a devastatingly low yield of one-third the normal rate.

Louise Gale of Greenpeace International testified that it is about time that genetic engineering was regulated.

"[This is] a good illustration of the need for international rules to control genetic engineering activities, especially the trans-boundary movements of genetically engineered organisms. We have always known that the agro-chemical industry will not act responsibly to protect bio-diversity and human health unless there are binding rules to make them do so."